
APPENDIX C

Coastal Zone Assessment

C.1 Federal Consistency Assessment Form

NEW YORK STATE DEPARTMENT OF STATE
COASTAL MANAGEMENT PROGRAM

Federal Consistency Assessment Form

An applicant, seeking a permit, license, waiver, certification or similar type of approval from a federal agency which is subject to the New York State Coastal Management Program (CMP), shall complete this assessment form for any proposed activity that will occur within and/or directly affect the State's Coastal Area. This form is intended to assist an applicant in certifying that the proposed activity is consistent with New York State's CMP as required by U.S. Department of Commerce regulations (15 CFR 930.57). It should be completed at the time when the federal application is prepared. The Department of State will use the completed form and accompanying information in its review of the applicant's certification of consistency.

A. **APPLICANT** (please print)

1. Name: Battery Park City Authority
2. Address: 200 Liberty Street, 24th Floor. New York, NY 10281
3. Telephone: Area Code () 212-417-2000

B. **PROPOSED ACTIVITY:**

1. Brief description of activity:

During Superstorm Sandy in 2012, coastal surge inundated Lower Manhattan on its western side through low elevation points near Pier A and in or adjacent to other parts of Battery Park City, damaging, destroying and/or negatively

2. Purpose of activity:

During Superstorm Sandy in 2012, storm and coastal surge inundated portions of Lower Manhattan on its western side through areas in or adjacent to northern

3. Location of activity:

<u>New York</u>	<u>Lower Manhattan</u>	<u>Battery Park</u>
County	City, Town, or Village	Street or Site Description

4. Type of federal permit/license required: USACE Section 404/Section 10 Permit

5. Federal application number, if known: _____

6. If a state permit/license was issued or is required for the proposed activity, identify the state agency and provide the application or permit number, if known:

NYSDEC Tidal Wetlands, Protection of Waters - will be part of a NYSDEC/USAC

C. **COASTAL ASSESSMENT** Check either "YES" or "NO" for each of these questions. The numbers following each question refer to the policies described in the CMP document (see footnote on page 2) which may be affected by the proposed activity.

1. Will the proposed activity result in any of the following: YES/NO
- a. Large physical change to a site within the coastal area which will require the preparation of an environmental impact statement? (11, 22, 25, 32, 37, 38, 41, 43)
 - b. Physical alteration of more than two acres of land along the shoreline, land under water or coastal waters? (2, 11, 12, 20, 28, 35, 44)
 - c. Revitalization/redevelopment of a deteriorated or underutilized waterfront site? (1)
 - d. Reduction of existing or potential public access to or along coastal waters? (19, 20)
 - e. Adverse effect upon the commercial or recreational use of coastal fish resources? (9,10)
 - f. Siting of a facility essential to the exploration, development and production of energy resources in coastal waters or on the Outer Continental Shelf? (29)
 - g. Siting of a facility essential to the generation or transmission of energy? (27)
 - h. Mining, excavation, or dredging activities, or the placement of dredged or fill material in coastal waters? (15, 35)
 - i. Discharge of toxics, hazardous substances or other pollutants into coastal waters? (8, 15, 35)
 - j. Draining of stormwater runoff or sewer overflows into coastal waters? (33)
 - k. Transport, storage, treatment, or disposal of solid wastes or hazardous materials? (36, 39)
 - l. Adverse effect upon land or water uses within the State's small harbors? (4)
2. Will the proposed activity affect or be located in, on, or adjacent to any of the following: YES/NO
- a. State designated freshwater or tidal wetland? (44)
 - b. Federally designated flood and/or state designated erosion hazard area? (11, 12, 17)
 - c. State designated significant fish and/or wildlife habitat? (7)
 - d. State designated significant scenic resource or area? (24)
 - e. State designated important agricultural lands? (26)
 - f. Beach, dune or Barrier Island? (12)
 - g. Major ports of Albany, Buffalo, Ogdensburg, Oswego or New York? (3)
 - h. State, county, or local park? (19, 20)
 - i. Historic resource listed on the National or State Register of Historic Places? (23)
3. Will the proposed activity require any of the following: YES/NO
- a. Waterfront site? (2, 21, 22)
 - b. Provision of new public services or infrastructure in undeveloped or sparsely populated sections of the coastal area? (5)
 - c. Construction or reconstruction of a flood or erosion control structure? (13, 14, 16)
 - d. State water quality permit or certification? (30, 38, 40)
 - e. State air quality permit or certification? (41, 43)
4. Will the proposed activity occur within and/or affect an area covered by a State-approved local waterfront revitalization program, or State-approved regional coastal management program? (see policies in program document*)

D. ADDITIONAL STEPS

1. If all of the questions in Section C are answered "NO", then the applicant or agency shall complete Section E and submit the documentation required by Section F.
2. If any of the questions in Section C are answered "YES", then the applicant or agent is advised to consult the CMP, or where appropriate, the local waterfront revitalization program document*. The proposed activity must be analyzed in more detail with respect to the applicable state or local coastal policies. On a separate page(s), the applicant or agent shall: (a) identify, by their policy numbers, which coastal policies are affected by the activity, (b) briefly assess the effects of the activity upon the policy; and, (c) state how the activity is consistent with each policy. Following the completion of this written assessment, the applicant or agency shall complete Section E and submit the documentation required by Section F.

E. CERTIFICATION

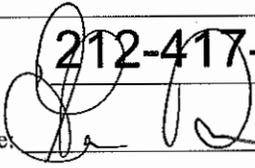
The applicant or agent must certify that the proposed activity is consistent with the State's CMP or the approved local waterfront revitalization program, as appropriate. If this certification cannot be made, the proposed activity shall not be undertaken. If this certification can be made, complete this Section.

"The proposed activity complies with New York State's approved Coastal Management Program, or with the applicable approved local waterfront revitalization program, and will be conducted in a manner consistent with such program."

Applicant/Agent's Name: Battery Park City Authority, Gwen Dawson, Vice President of Real Property

Address: Battery Park City Authority, 200 Liberty Street, 24th Floor, New York, NY 10281

Telephone: Area Code (212-417-2000

Applicant/Agent's Signature:  Date: 4/12/22

F. SUBMISSION REQUIREMENTS

1. The applicant or agent shall submit the following documents to the **New York State Department of State, Office of Planning and Development, Attn: Consistency Review Unit, One Commerce Plaza-Suite 1010, 99 Washington Avenue, Albany, New York 12231.**

- a. Copy of original signed form.
- b. Copy of the completed federal agency application.
- c. Other available information which would support the certification of consistency.

2. The applicant or agent shall also submit a copy of this completed form along with his/her application to the federal agency.

3. If there are any questions regarding the submission of this form, contact the Department of State at (518) 474-6000.

*These state and local documents are available for inspection at the offices of many federal agencies, Department of environmental Conservation and Department of State regional offices, and the appropriate regional and county planning agencies. Local program documents are also available for inspection at the offices of the appropriate local government.

**NYS DOS COASTAL MANAGEMENT PROGRAM
 FEDERAL CONSISTENCY ASSESSMENT FORM ADDENDUM
 CONSISTENCY WITH CMP POLICIES**

The Federal Consistency Assessment Form (FCAF) completed in support of the permit application for the South Battery Park City Resiliency (SBPCR) Project (Proposed Action) identified several policies that required further explanation for consistency with the policies within the NYS Coastal Management Program (CMP). This document provides explanations of why the proposed activities are consistent with the coastal zone policies.

Figure 1 below identifies the Project location within the New York State Coastal Zone Management Boundary.

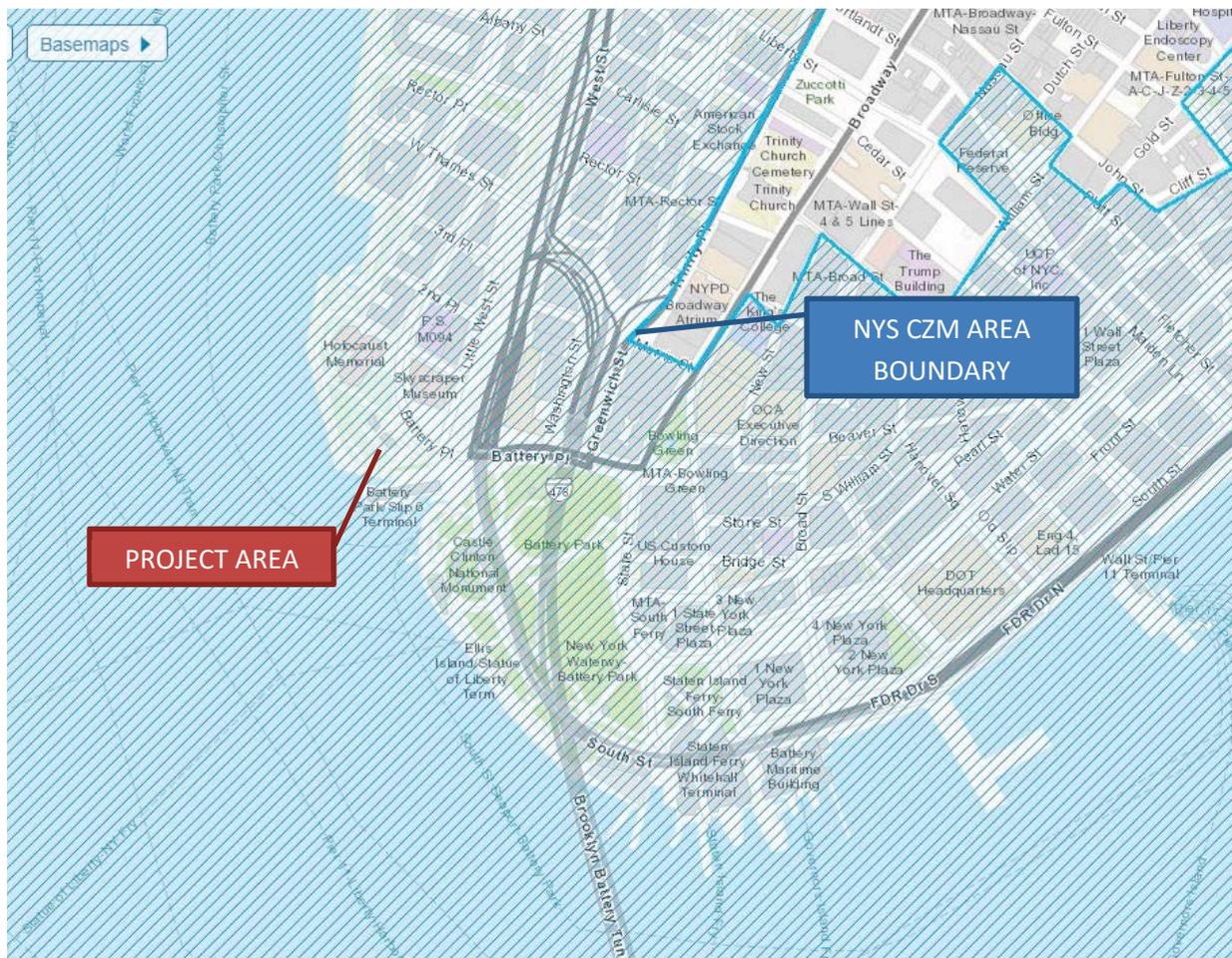


Figure 1 Project Area within the New York State Coastal Zone Management Area



B1. Brief Description of Activity

During Superstorm Sandy in 2012, coastal surge inundated Lower Manhattan on its western side through low elevation points near Pier A and in or adjacent to other parts of Battery Park City, damaging, destroying and/or negatively impacting significant components of Lower Manhattan's critical and civic infrastructure. In response to the devastating impact of Superstorm Sandy in Lower Manhattan and in anticipation of future severe storm activity related to global climate change, the SBPCR Project has been developed by the BPCA as an integrated coastal flood risk management project in Lower Manhattan. The SBPCR Project represents one of several projects within the overall Lower Manhattan Coastal Resiliency (LMCR) Master Plan

The SBPCR Project Area (Project Area), the area of direct physical disturbance, extends from 1st Place and the Museum of Jewish Heritage, through Robert F. Wagner Park (Wagner Park or the Park), across Pier A Plaza, and then along the north side of the Battery Bikeway in The Battery to higher ground near the intersection of Battery Place and State Street. The SBPCR Study Area (Study Area), which extends beyond the Project Area, varies by resource but is generally defined as the area within 400 feet of the SBPCR Project improvements.

The SBPCR Project is being designed to provide flood risk reduction within the Project Area for the current 100-year flood, inclusive of increased intensity and frequency of rainfall, coastal surge, and predicted sea level rise. It is one of three (3) resiliency projects being undertaken by BPCA to address flood risk reduction throughout Battery Park City's ninety-two (92) acres. The other two projects are the Battery Park City Ball Fields and Community Center Resiliency Project, and the North/West BPC Resiliency Project. The SBPCR Project is also being designed with adaptability for the 2050 100-year storm event at such time as the North/West BPC Resiliency Project is completed and a tie-in between the two (2) projects is created

The flood alignment is composed of multiple different integrated features such as flip-up deployable gates (flip-up deployables), glass-topped floodwalls, buried floodwalls underneath terraced slopes, exposed floodwalls, and bermed floodwalls. The term "flood alignment" is used to differentiate the combination of flood control measures represented by the SBPCR Project from a traditional freestanding flood wall for risk reduction. In addition, interior drainage improvements are proposed for the SBPCR Project, including the isolation of the existing underground sewer manholes and connected chambers.

B2. Purpose of Activity

During Superstorm Sandy in 2012, storm and coastal surge inundated portions of Lower Manhattan on its western side through areas in or adjacent to northern Battery Park City and Pier A Plaza south of Wagner Park. Water also found its way onto One World Trade Center and the Hugh L. Carey Tunnel (formerly known as the Brooklyn-Battery Tunnel) and impacted much of Lower Manhattan's critical infrastructure.

The SBPCR Project's primary goal is risk reduction in the southern extremes of Battery Park City. This would be accomplished through implementation of integrated flood risk measures, while meeting the



design criteria for a 100-year storm event, inclusive of increased intensity and frequency of rainfall, coastal surge and predicted sea level rise. While the SBPCR Project would provide immediate risk reduction for the 100-year storm, it would also provide ready adaptability to the DFE for the 2050 100-year storm at such time as the North/West BPC Resiliency Project is constructed and a tie-in between the systems is created. The SBPCR Project is expected to be accredited by the Federal Emergency Management Agency (FEMA). Accreditation requires a FEMA review of as-built plans and verification that the flood system meets all pertinent requirements and achieves acceptable risk reduction in practice.

The purpose of the SBPCR Project is to:

- Provide a reliable coastal flood control system to provide risk reduction to property, residents and assets within the vicinity of South Battery Park City in response to the design storm event;
- Protect and preserve to the maximum extent practicable, open space resources and opportunities to view and interact with the Manhattan waterfront, particularly in Wagner Park, Pier A Plaza and The Battery; and,
- Avoid or minimize disruption to existing below and above-ground infrastructure (i.e., water and sewer infrastructure, subways, tunnels, utilities, etc.) from flood events.

Specific objectives of the SBPCR Project are to:

- Provide a reliable coastal flood control system that minimizes risk and the need for operational interventions by relying primarily on passive flood control technology as opposed to mechanical “deployable” flood control technology;
- Construct and operate the project in an environmentally responsible manner;
- Preserve to the greatest extent practicable the character and design aesthetic of the community and its interface with the BPC waterfront and access to coastal viewsheds, particularly views of the harbor and Statue of Liberty; and
- Utilize cost-effective solutions to maximize capital investment over the lifespan of the SBPCR Project.



Compliance with NYSDOS Coastal Management Policies

Review of the FCAF forms indicates Questions 1a, b, h, 2a, b, c, g, h, i, and 3a, c, and d were identified necessitating an evaluation of policies: 2, 3, 7, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 25, 28, 30, 32, 35, 37, 38, 40, 41, 43, and 44. Responses to the policies are provided below.

Policy 2: Facilitate the siting of water dependent uses and facilities on or adjacent to coastal waters.

The Proposed Action will not reduce or adversely affect the area currently or recently devoted to any water dependent use and public access to the waterfront will be maintained. Following construction, the SBPCR Project will maintain public access to the Battery Park City Esplanade around Wagner Park, Pier A Plaza, and The Battery. Additionally, the Pier A Inlet area does not currently have direct public access from the Wagner Park side of the inlet. The proposed Living Shoreline design creates a new viewing platform that would enhance the public connection to the waterfront. As such, the project complies with this policy.

Policy 3: Further develop the State's major ports as centers of commerce and industry, and encourage the siting, in these port areas, including those under the jurisdiction of State public authorities, of land use and development which is essential to, or in support of, the waterborne transportation of cargo and people.

The SBPCR Project has been developed as an integrated coastal flood risk management project in Lower Manhattan and promotes resiliency in the Project Area, which supports commerce and industry in the general port area. As such, the project complies with this policy.

Policy 7: Significant Coastal Fish and Wildlife Habitats (SCFWH) will be protected, preserved, and where practical, restored so as to maintain their viability as habitats.

The waters adjacent to the Project Area are designated as Lower Hudson Reach Significant Coastal Fish and Wildlife Habitat (SCFWH) (**Figure 2**). The Lower Hudson Reach SCFWH is identified as one of only a few large tidal river mouth systems in the northeastern United States, providing a unique range of salinity and other estuarine features. Numerous estuarine and marine species occur regularly in the harbor, along with various anadromous and catadromous fish species. This habitat sustains a diverse community of benthic, planktonic, and pelagic species. The river provides important wintering habitat for large numbers of striped bass (*Morone saxatilis*). Significant numbers of yearling winter flounder (*Pseudopleuronectes americanus*) also occupy this stretch of the river in winter months. Surveys have also found summer flounder (*Paralichthys dentatus*), white perch (*Morone americana*), Atlantic tomcod (*Microgadus tomcod*), Atlantic silversides (*Menidia menidia*), bay anchovy (*Anchoa mitchilli*), hogchokers (*Trinectes maculatus*) and American eel (*Anguilla rostrata*) in significant numbers. This area of the river is also utilized by bluefish (*Pomatomus saltatrix*) and weakfish (*Cynoscion regalis*) young of year and both Atlantic sturgeon



(Acipenser oxyrinchus oxyrinchus) and shortnose (adult only) sturgeon (*Acipenser brevirostrum*). American shad (*Alosa sapidissima*) and blue crabs (*Callinectes sapidus*) also contribute to the fishery. Animals of lower trophic levels are also present in substantial numbers providing an important food source. These include planktonic forms such as copepods, rotifers, mysid shrimp; and, benthic forms such as nematodes, oligochaetes, polychaetes, and amphipods. Additionally, the Lower Hudson Reach also provides habitat for several species of wintering waterfowl.

The only disturbance to the SCFWH would be a disturbance to 435 sq ft of intertidal habitat associated with the implementation of a Living Shoreline in Pier A Inlet. The Living Shoreline, once completed would provided an positive effect on the SCFWH. During construction, impacts to the SFFWH are anticipated to be minimal, if any. A silt curtain will be placed landward of the lowtide line and hay bales and other containment devices would be placed along the limit of upand disturbance to prevent sedimentation.

The Proposed Action would provide a positive ecological benefit to the SCFWH. The project complies with this policy.



Legend

Project Area

Habitat

Lower Hudson Reach Significant Coastal Fish and Wildlife Habitat

* - No SAV located within map extents
Map Source:
NYS DEC Submerged Aquatic Vegetation (SAV) 2016;
NYS DEC Significant Coastal Fish and Wildlife Boundaries 2013;
ESRI Base Orthoimagery

South Battery Park City Resiliency Project

Figure 2 Significant Coastal Fish and Wildlife Habitat



Policy 11: Buildings and other structures will be sited in the coastal area so as to minimize damage to property and the endangering of human lives caused by flooding and erosion.

The SBPCR Project is an integrated coastal flood risk management project in Lower Manhattan and promotes resiliency in the Project Area. As part of the project, a new Pavilion will be constructed in Wagner Park. This building will be sited on the newly elevated Wagner Park, above the design flood elevation. The purpose of the project is to limit and minimize damage to property caused by flooding and erosion. As a result, the project complies with this policy.

Policy 12: Activities or development in the coastal area will be undertaken so as to minimize damage to natural resources and property from flooding and erosion by protecting natural protective features including beaches, dunes, barrier islands and bluffs.

The SBPCR Project consists of coastal flood protection structures to promote public safety and will be constructed on previously disturbed land in an urban environment lacking natural protective features. The SBPCR Project has been designed to reduce damage from sea level rise and coastal flooding from storm events.

Policy 13: The construction or reconstruction of erosion protection structures shall be undertaken only if they have a reasonable probability of controlling erosion for at least thirty years as demonstrated in design and construction standards and/or assured maintenance or replacement programs.

Policy 13 is not applicable to the Proposed Action.



Policy 14: Activities and development, including the construction or reconstruction of erosion protection structures, shall be undertaken so that there will be no measurable increase in erosion or flooding at the site of such activities or development, or at other locations.

The SBCPR Project has been designed to protect from erosion and flooding within the protected area and prevent any increased potential for erosion or flooding. The project complies with this policy.

Policy 15: Mining, excavation or dredging in coastal waters shall not significantly interfere with the natural coastal processes which supply beach materials to land adjacent to such waters and shall be undertaken in a manner which will not cause an increase in erosion of such land.

The SBPCR Project would remove a net total 1.2 cubic yards below Mean High Water (MHW). Also, between the spring high tide line (SHTL) and 10 ft in elevation, the Project would result in the net removal of 555 cubic yards of material. Between the MHW and SHTL the Project would increase the net fill by 3.3 cubic yards within the approximate 0.15-acre Living Shoreline. The SBPCR Project would not significantly interfere with the natural coastal process and would not cause an increase in erosion. The SBPCR Project will obtain all necessary permits associated with dredging or filling activities prior to commencement of work. As a result, the SBPCR Project complies with this policy.

Policy 16: Public funds shall only be used for erosion protective structures where necessary to protect human life, and new development which requires a location within or adjacent to an erosion hazard area to be able to function, or existing development; and only where the public benefits outweigh the long term monetary and other costs including the potential for increasing erosion and adverse effects on natural protective features.

The SBPCR Project is publicly funded and has been designed to protect human life and property within the protected area against the 100-year storm event, inclusive of increased intensity and frequency of rainfall, coastal surge, and predicted sea level rise. It has also been designed to allow for a higher level of protection once the North/West BPC Resiliency Project is constructed. Therefore, it complies with this policy.

Policy 17: Non-structural measures to minimize damage to natural resources and property from flooding and erosion shall be used whenever possible.

The SBPCR Project has been designed to reduce damage from sea level rise and coastal flooding from storm events. Flood protection has been arranged as a layered, multi-elevational system extending back from the water's edge into the park. On the waterside of the flood protection system, there is an existing pedestrian esplanade situated over an existing relieving platform. Along the interior edge of the relieving platform, light-weight flood control features including walkways lined by curbs and seat walls create terraced



planting areas with vegetatively stabilized slopes. Therefore, the SBPCR Project complies with this policy.

Policy 19: Protect, maintain, and increase the level and types of access to public water related recreation resources and facilities.

During construction, to protect the safety of the public, access will be restricted around active construction locations. Following construction, the SBPCR Project will maintain public access to the Battery Park City Esplanade around Wagner Park, Pier A Plaza, and The Battery. The Pier A Inlet area does not have direct public access from the Wagner Park side of the inlet. The proposed Living Shoreline design creates a new viewing platform that would enhance the public connection to the waterfront and the public would be able to view the Living Shoreline from Wagner Park. Therefore, the SBPCR Project complies with this policy.

Policy 20: Access to the publicly-owned foreshore and to lands immediately adjacent to the foreshore or the water's edge that are publicly-owned shall be provided and it shall be provided in a manner compatible with adjoining uses.

See response to Policy 19.

Policy 21: Water dependent and water enhanced recreation will be encouraged and facilitated and will be given priority over non-water-related uses along the coast.

The SBPCR Project will not affect current or future development for water-related recreation. The Project will maintain public access to the Battery Park City Esplanade around Wagner Park, Pier A Plaza, and The Battery, and is designed to protect views of scenic resources such as the Hudson River, the Statue of Liberty, and Ellis Island. Additionally, the proposed Living Shoreline design creates a new viewing platform that would enhance the public connection to the waterfront. Therefore, the SBPCR Project complies with this policy.

Policy 22: Development when located adjacent to the shore will provide for water-related recreation whenever such use is compatible with reasonably anticipated demand for such activities and is compatible with the primary purpose of the development.

See response to Policy 21.

Policy 23: Protect, enhance and restore structures, districts, areas or sites that are of significance in the history, architecture, archaeology or culture of the State, its communities, or the Nation.

As part of the review for the Environmental Impact Statement, the impacts of the Proposed Action were analyzed in accordance with Section 14.09 on the 28 historic architectural resources in the Historic Architectural Area of Potential Effect (APE).



The Proposed Action would have an Adverse Impact on one resource: Wagner Park. With respect to the remaining 27 resources, the project would result in No Adverse Impact on nine resources, and No Impact on 18 resources. Avoidance, mitigation, and minimization measures are described below.

The Proposed Action would result in No Adverse Impact on two of the nine resources for which avoidance measures are recommended – Pier A and Castle Clinton. With respect to Pier A, it is located less than 90 feet from the Proposed Action, and as a result, it is recommended that a Construction Protection Plan (CPP) be prepared in accordance with Department of Buildings (DOB) and Landmarks Preservation Commission (LPC) guidelines. Regarding Castle Clinton, it is situated within The Battery adjacent to, and approximately 200 feet southeast of the Proposed Action in Pier A Plaza. The CPP recommended for Castle Clinton would ensure that all measures are being undertaken to protect this National Monument from construction that would occur on an adjacent lot.

In addition, the Proposed Action would result in an Adverse Impact on Wagner Park. Section 14.09 requires that adverse impacts to National Register-listed and/or eligible resources caused by implementation of the undertaking be resolved through mitigation. Therefore, it is anticipated that a Letter of Resolution (LOR) would be drafted and executed between BPCA, SHPO, and other consulting parties to mitigate the Adverse Effect. Potential mitigation could possibly include, but not be limited to:

- Historic American Landscape Survey (HALS) Documentation of Wagner Park prior to construction. Documentation would include a physical description, historic overview, statement of significance, project information, high-quality digital or large-format photographs, and reproduction of select original plans and historic photographs.
- Interpretive panels installed at the new Wagner Park; panels could describe the original park, and the reasons why it was deemed an exceptionally significant National Register-eligible resource.
- Website publicized on-site or QR codes that could be activated on-site, and direct user to a history of Wagner Park, and the reasons why it was deemed an exceptionally significant National Register-eligible resource; the content could be similar to the panels.

Additionally in Pier A Plaza, the location of the historic waters' edge will be indicated by medallion insets that replace the existing linear stone bands that trace the location of the old waters' edge, thereby maintaining this educational feature.

Ultimately, mitigation recommendations that are agreeable to all parties would be incorporated into the LOR as stipulations.

A Phase IA Archaeological Documentary Study is currently being prepared in compliance with SEQR and CEQR guidelines, pursuant to requests for such a survey by SHPO and LPC. The Phase IA



documentary study has concluded that there are two discrete areas of low to moderate and moderate potential archaeological sensitivity across portions of the APE that may be impacted by the completion of the SBPCR Project. As the SBPCR Project lies within highly utilized public spaces, in order to minimize traffic disruptions and closures of public space, preparation of a Phase IB Archaeological Monitoring Plan in consultation with BPCA, SHPO and LPC, is recommended.

With this mitigation and archaeological monitoring plan, the Proposed Action would be consistent with this policy.

Policy 25: Protect, restore or enhance natural and man-made resources which are not identified as being of statewide significance, but which contribute to the overall scenic quality of the coastal area.

The SBPCR Project maintains the visual quality of the New York Coastal area, by maintaining views to the waterfront and improving access to the open space and the waterfront. This is accomplished through a variety of context-sensitive design measures throughout the project design, including minimizing fixed walls, providing universal access, maintaining views of New York Harbor and the Statue of Liberty from the new Pavilion. These design elements have been coordinated with the New York City Public Design Commission. Therefore, the Proposed Action would be consistent with this policy.

Policy 28: Ice management practices shall not interfere with the production of hydroelectric power, damage significant fish and wildlife and their habitats, or increase shoreline erosion or flooding.

Policy 28 is not applicable to the Proposed Action.

Policy 30: Municipal, industrial, and commercial discharge of pollutants, including but not limited to, toxic and hazardous substances, into coastal waters will conform to State and National water quality standards.

Policy 30 is not applicable to the Proposed Action.

Policy 32: Encourage the use of alternative or innovative sanitary waste systems in small communities where the costs of conventional facilities are unreasonably high, given the size of the existing tax base of these communities.

Policy 32 is not applicable to the Proposed Action.

Policy 35: Dredging and filling in coastal waters and disposal of dredged material will be undertaken in a manner that meets existing State dredging permit requirements, and protects significant fish and wildlife habitats, scenic resources, natural protective features, important agricultural lands, and wetlands.



During construction, dredging and/or filling in coastal waters is necessary in limited areas due to construction of the living shoreline along the Pier A Inlet. The SBPCR Project will comply with all applicable federal and state laws and regulations regarding water quality, fish and wildlife habitats, wetlands, scenic resources, natural protective features, important agricultural lands, and important coastal resources in order to avoid or minimize potential affects to these resources by the SBPCR Project. The SBPCR Project will obtain all necessary permits associated with dredging or filling activities prior to commencement of work.

The removal of the existing riprap along the shoreline would be conducted by land-based equipment. For the construction of the Living Shoreline, a silt curtain would be placed at or above the elevation of Mean Low Water prior to the start of the construction and would remain in place throughout the shoreline construction period. Therefore, the SBPCR Project complies with this policy.

Policy 37: Best management practices will be utilized to minimize the non-point discharge of excess nutrients, organics, and eroded soils into coastal waters.

Erosion and sediment controls will be installed during construction in accordance with the appropriate approved Stormwater Pollution Prevention Plan. Therefore, the SBPCR Project complies with this policy.

Policy 38: The quality and quantity of surface water and groundwater supplies will be conserved and protected, particularly where such waters constitute the primary or sole source of water supply.

Policy 38 is not applicable to the Proposed Action.

Policy 41: Land use or development in the coastal area will not cause national or State air quality standards to be violated.

Implementation of the Proposed Action would not increase or cause a redistribution of traffic once the Proposed Action is constructed, nor add new uses near mobile sources. It would not create new mobile sources of pollutants or introduce new uses near existing or planned stationary sources.

The Proposed Action consists of several flood alignment elements: flip-up deployables, glass-topped floodwalls, buried floodwalls, exposed floodwalls, and bermed floodwalls. The flip-up deployables would be powered by the New York City electrical grid system during an emergency as well as for routine maintenance. A series of mobile emergency generators would be brought to the site for backup power in case of grid power failure at the time of deployment. These mobile emergency generators would be tested off site during routine maintenance resulting in no adverse air quality impacts.



The new pavilion building is also considered a stationary source of emissions as it must be climate controlled through HVAC systems. The proposed pavilion design is anticipated to result in a 38 percent Energy Use Intensity (EUI) reduction over a similar baseline building and would include an energy efficient geothermal system. In addition, given the size of the structure, it would not have potential impacts to the nearest residential buildings.

During construction, the SBPCR Project will utilize best available technology (BAT). Since any potential exceedances of the NYC annual PM_{2.5} *de minimis* criterion would be temporary and predicted to occur at multiple ground floor receptors only during the first 12-month rolling period, the potential air quality impacts would not be significant.

Therefore, the SBPCR Project would result in no significant adverse impacts to air quality and complies with this policy.

Policy 43: Land use or development in the coastal area must not cause the generation of significant amounts of acid rain precursors: nitrates and sulfates.

Chemical precursors to acid rain include emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x) resulting from fossil fuel combustion for which the EIS discussed or quantified for the proposed action. Given the small amount of NO_x emissions generated and the local law requirement of using ultra low sulfur fuel, the SBPCR Project would be in compliance with this policy.

Policy 44: Preserve and protect tidal and freshwater wetlands and preserve the benefits derived from these areas. Tidal wetlands include coastal fresh marsh; intertidal marsh; coastal shoals, bars and flats; littoral zone; high marsh or salt meadow; and formerly connected tidal wetlands as delineated on NYSDEC's Tidal Wetlands Inventory Map.

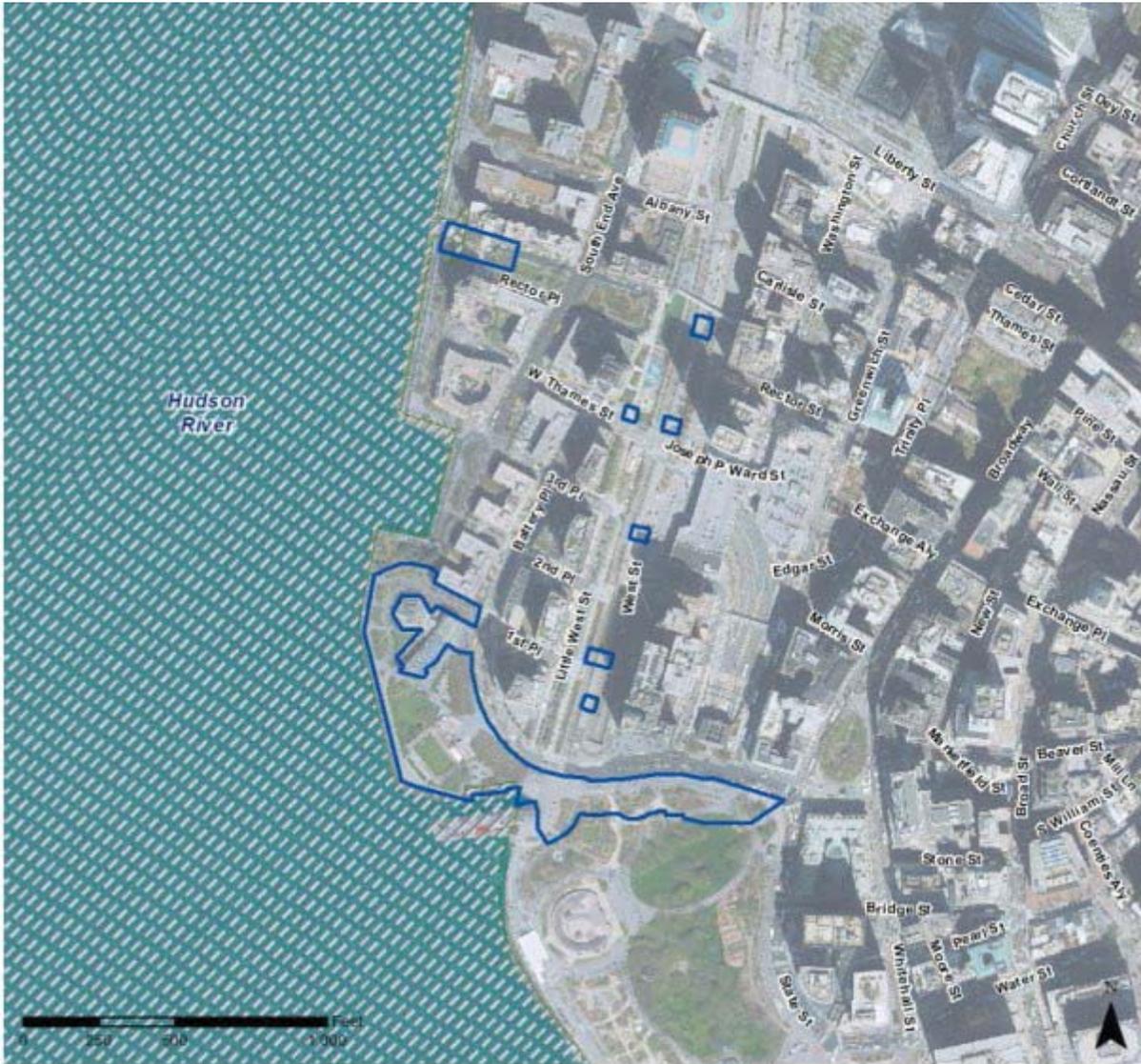
A Wetland Delineation identified that all wetlands onsite are tidal wetlands. There are no vegetated wetlands within and/or immediately adjacent to the Project.

The Project will impact a small portion (435 sq ft) of Littoral Zone tidal wetlands regulated by NYSDEC due to shallow depths. The proposed Living Shoreline design at Pier A Inlet would modify the existing shoreline and improve the area and quality of the tidal wetlands. These habitat enhancements proposed at Pier A Inlet would provide an increase ecological diversity. When completed, the living shoreline would provide an oasis of vegetated and shallow water habitat that is currently devoid on the southern tip of Manhattan. As part of the planned design, within an approximate 180-ft length of area occupied by riprap, the riprap material would be removed and replaced with vegetative plantings and tide pools (Figure 3). Also, within an approximate 1,746 sq ft area, the existing decking, soil and other fill materials would be removed down to the relieving platform and/or pier bents. These surfaces would be covered with an eco-concrete substance to mimic a rocky shoreline and enhance fauna and

flora usage. As an added benefit, approximately 165 sq ft of water would be exposed to direct sunlight, and another 282 sq ft of habitat would be 50 percent daylighted by a metal grated viewing platform.



Photo 1 Looking west at the Pier A inlet - note the unvegetated riprap shoreline of Wagner Park on the right side of the photograph.



Legend

-  Project Area Sites
- NYSDEC Tidal Wetlands**
-  Littoral Zone
- NWI Wetlands**
-  E1UBL - Estuarine and Marine Deepwater

* - No Check Zones located within map extents
Map Source:
USFWS NWI Surface Water and Wetlands

South Battery Park City Resiliency Project

Figure 3 Mapped Wetlands

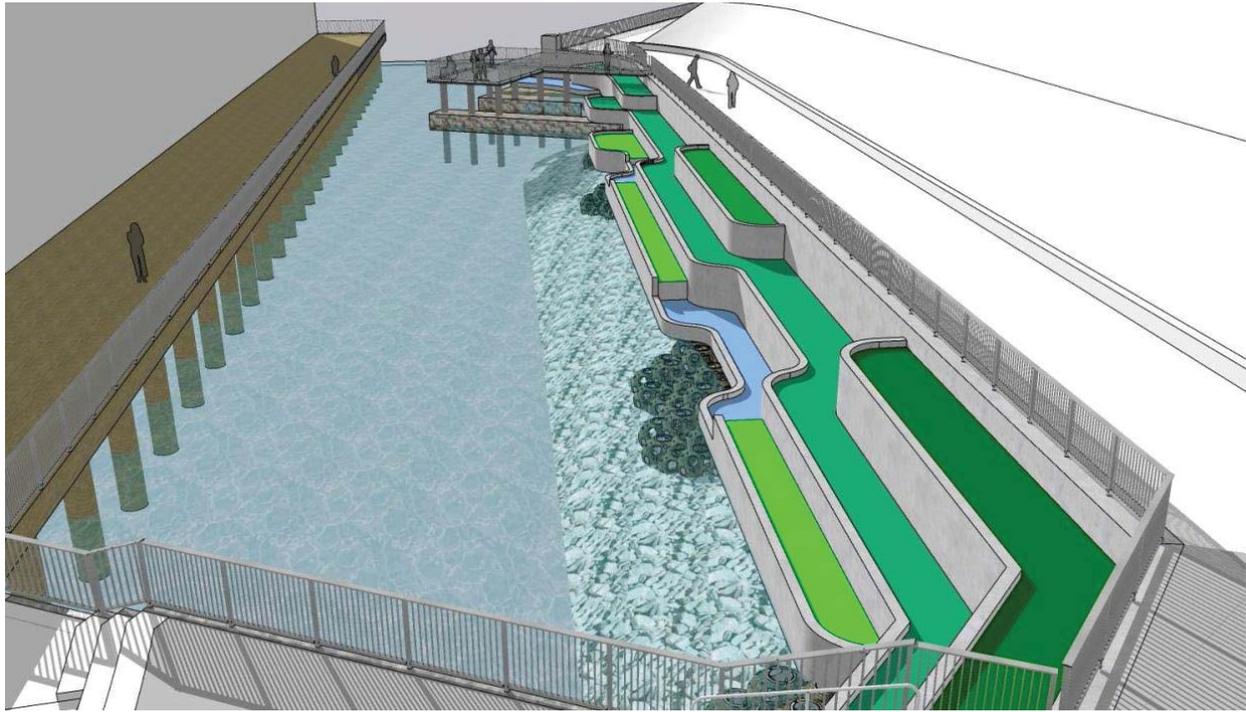


Figure 4 Proposed Shoreline Enhancement



Attachment A

Habitat Impairment Test

Lower Hudson Reach Significant Coastal Fish and Wildlife Habitat

1 Introduction

The SBPCR Project is located within the Lower Hudson Reach Significant Coastal Fish and Wildlife Habitat (SCFWH). The Lower Hudson Reach SCFWH includes the portion of the Hudson River starting from Battery Park at the tip of Manhattan and extending north to Yonkers in the vicinity of Glenwood. This area runs for 19 River miles and includes deepwater, shallows, piers and interpier basins. As per the New York State Department of State's Coastal Fish & Wildlife Habitat Rating Form, the notable ecological and conditions in the SCFWH are the following:

- The entire lower portion of the Hudson River estuary may provide an important habitat in the life history of striped bass by providing a sheltered environment with abundant food sources that are associated with the winter position of the River's salt front.
- Significant numbers of other finfish species such as yearling winter flounder, summer flounder, white perch, Atlantic tomcod, Atlantic silversides, bay anchovy, hogchokers and American eel occupy this stretch of the River.
- Animals of lower trophic levels such as copepods, rotifers, mysid shrimp and benthic forms such as nematodes, oligochaetes, polychaetes, and amphipods are also present in substantial numbers and provide an important food source.
- The Lower Hudson Reach also provides habitat for several species of wintering waterfowl.

2 Habitat Impairment Test

A habitat impairment test must be met for any activity that is subject to consistency review under Federal and State laws, or under applicable local laws contained in an approved local waterfront revitalization program. If the proposed action is subject to consistency review, then the habitat protection policy applies, whether the proposed action is to occur within or outside the designated area. The specific habitat impairment test that must be met is as follows. In order to protect and preserve a significant habitat, land and water uses or development shall not be undertaken if such actions would:

- **Destroy the habitat** - Habitat destruction is defined as the loss of fish or wildlife use through direct physical alteration, disturbance, or pollution of a designated area or through the indirect effects of these actions on a designated area. Habitat destruction may be indicated by changes in vegetation, substrate, or hydrology, or increases in runoff, erosion, sedimentation, or pollutants; or,



- **Significantly impair the viability of a habitat** - Significant impairment is defined as reduction in vital resources (e.g., food, shelter, living space) or change in environmental conditions (e.g., temperature, substrate, salinity) beyond the tolerance range of an organism. Indicators of a significantly impaired habitat focus on ecological alterations and may include but are not limited to reduced carrying capacity, changes in community structure (food chain relationships, species diversity), reduced productivity and/or increased incidence of disease and mortality.

2.1 Impact Assessment

As per the NYSDOS' *Coastal Fish & Wildlife Habitat Rating Form* for the Lower Hudson Reach SCFWH, examples of generic activities and impacts which could destroy or significantly impair the habitat are listed below to assist in applying the habitat impairment test to a proposed activity.

1. Any activity that would degrade water quality in the Lower Hudson Reach and would adversely affect habitat values for fish and wildlife using the area. Many species of fish and wildlife would be adversely affected by water pollution through chemical or toxic contamination (including food chain effects), oil spills, excessive turbidity or sedimentation, and waste disposal.
2. Transient habitat disturbances, such as those resulting from dredging or in-River construction activities, could result in significant impairment of the habitat value for striped bass, particularly as an overwintering area between mid-November and mid-April. Dredging can only be conducted during the identified overwintering period under the following circumstances. Documentation must be provided which demonstrates that the dredging can only be scheduled during the overwintering period. Documentation should include an analysis of alternatives that could allow dredging to occur during less sensitive periods. In cases where alternatives to dredging during the overwintering period are not available, both spatial and temporal methods aimed at reducing potential impacts shall be used and cumulative impacts should be evaluated.
3. Large scale non-consumptive use of water may disrupt salinity gradients both by removing significant quantities of freshwater from the Hudson or its watershed and, following use of the water, discharging it in a higher salinity environment. Adverse impacts on the River's resources from large scale non-consumptive uses would be greatest during summer drought conditions.
4. Installation and operation of water intakes could also have significant impacts on fish populations in the area through impingement of juveniles and adults, or entrainment of eggs and larval stages.
5. Continued efforts should be made to improve water quality in the Lower Hudson Reach and include upgrading and control of sewage discharges, other point sources, and nonpoint source pollution.
6. Major structural alteration to the habitat through dredging, filling or platforming on dense piles could cause significant impairment of the habitat. Recent research suggests that little difference exists in habitat values or use between underpier areas and interpier basins. No information exists, however, that adequately demonstrates the relationship among the River's physical environment, existing shoreline and inwater structures, seasonal salinity regimes, and the resultant habitat values. Absent



an adequate understanding of the function of this habitat, significant impairment of the habitat could result if major structural alterations occur.

Many of the actions identified above would not apply as the SBPCR Project does not include large scale water use, surface water intakes, activities that would impact salinity, or major structural habitat alterations. Although located within SCFWH, the in-water work would only impact 432 square feet (0.011 acres) of habitat below MHW, is temporary (12 to 14 months), would extend no further than the low tide line, and would be constructed in an area protected by silt curtains. The removal of the relieving platform will be conducted concurrently with the removal of the riprap from the shoreline using land-based equipment. The material removed will be placed into dump trucks and taken to a suitable upland location. The SBPCR Project would result in a net increase in habitat as a total of 340 cubic yards of material would be removed from below the MHW and intertidal habitats will be converted to more ecologically productive habitats (e.g., salt marsh plantings, etc.). The new viewing platform would be placed on existing piers and bents so there will be no need to drive additional piles and the concrete eco fascia would be secured to the existing piers and bents using clips and bolts.

2.2 Striped Bass and other Finfish Species

As only 435 sq ft of low quality intertidal habitat of steeply sloped riprap will be affected and most of the work performed in the upper half of the tidal range, the Project would have no effect on habitat, species, or their prey. Additionally, during construction, a silt curtain will be placed landward of the lowtide line and hay bales and other containment devices would be placed along the limit of disturbance to prevent sedimentation. The riprap slope is of limited biological productivity and the placement of a Living Shoreline would result in net ecological benefit for these fish species.

2.3 Aquatic Invertebrates

Aquatic invertebrates would benefit from the shoreline restoration. As part of the planned restoration, intertidal and supratidal vegetative plantings would be placed in the area of existing riprap and tide pools would be constructed, enhancing the habitat quality of the area. Any temporary habitat disturbances and minor losses of benthic habitat would be offset with the positive long-term habitat improvements in the Project Area.

2.4 Overwintering Waterfowl

The enhancement of the shoreline will create more higher quality, more productive habitat that wintering waterfowl may use for swimming, foraging, and loafing. As such, the SBPCR Project will have ecological benefits for overwintering waterfowl.



3 Conclusions

The activities associated with the SBPCR Project would not result in habitat destruction or significantly reduce the viability of the SCFWH. The limited and temporary disturbance associated with the in-water construction activities would represent a de minimis level of disruption to the fauna within the Lower Hudson River and result in long-term ecological benefits. Finally, the entire southern shoreline of Manhattan is bulkheaded. The placement of the Living Shoreline would be an benefit both to wildlife and the SCFWH.

C.2 New York City Consistency Assessment Form

FOR INTERNAL USE ONLY

Date Received: _____

WRP No. _____

DOS No. _____

NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM Consistency Assessment Form

Proposed actions that are subject to CEQR, ULURP or other local, state or federal discretionary review procedures, and that are within New York City's Coastal Zone, must be reviewed and assessed for their consistency with the [New York City Waterfront Revitalization Program](#) (WRP) which has been approved as part of the State's Coastal Management Program.

This form is intended to assist an applicant in certifying that the proposed activity is consistent with the WRP. It should be completed when the local, state, or federal application is prepared. The completed form and accompanying information will be used by the New York State Department of State, the New York City Department of City Planning, or other city or state agencies in their review of the applicant's certification of consistency.

A. APPLICANT INFORMATION

Name of Applicant: Hugh L. Carey Battery Park City Authority

Name of Applicant Representative: Gwen Dawson

Address: Battery Park City Authority, 200 Liberty Street, 24th Floor, New York, NY 10281

Telephone: 212-417-2000 Email: Gwen.Dawson@bpca.ny.gov

Project site owner (if different than above): See attached Block and Lot map for full list of owners

B. PROPOSED ACTIVITY

If more space is needed, include as an attachment.

1. Brief description of activity

The South Battery Park City Resiliency (SBPCR) Project consists of a flood alignment within the Project Area boundary spanning from 1st Place and the Museum of Jewish Heritage, through Robert F. Wagner Park (Wagner Park), abutting Pier A Plaza, then running along the north side of the Battery Bikeway in The Battery to higher ground near the intersection of Battery Place and State Street. The flood alignment is composed of many different integrated features, such as flip-up deployable gates, buried floodwalls, free standing floodwalls, and terraced slopes.

A complete description is available in the attached narrative.

2. Purpose of activity

The SBPCR Project's primary goal is risk reduction in the southern extremes of Battery Park City. This would be accomplished through implementation of integrated flood risk measures, while meeting the design criteria for a 100-year storm event, inclusive of increased intensity and frequency of rainfall, coastal surge and predicted sea level rise. While the SBPCR Project would provide risk reduction for the 100-year storm, it would also provide immediate adaptability to the DFE for the 2050 100-year storm once the North/West BPC Resiliency Project is constructed and a tie-in between the systems is accomplished.

A complete description is available in the attached narrative.

C. PROJECT LOCATION

Borough: Manhattan Tax Block/Lot(s): Block 16, Lot 1/Lot 3/Lot 10; Block 3, Lot 1

Street Address: 20 Battery Place, New York, NY, 10004

Name of water body (if located on the waterfront): Hudson River and Upper New York Bay

D. REQUIRED ACTIONS OR APPROVALS

Check all that apply.

City Actions/Approvals/Funding

City Planning Commission Yes No

<input type="checkbox"/> City Map Amendment	<input type="checkbox"/> Zoning Certification	<input type="checkbox"/> Concession
<input type="checkbox"/> Zoning Map Amendment	<input type="checkbox"/> Zoning Authorizations	<input type="checkbox"/> UDAAP
<input type="checkbox"/> Zoning Text Amendment	<input type="checkbox"/> Acquisition – Real Property	<input type="checkbox"/> Revocable Consent
<input type="checkbox"/> Site Selection – Public Facility	<input type="checkbox"/> Disposition – Real Property	<input type="checkbox"/> Franchise
<input type="checkbox"/> Housing Plan & Project	<input type="checkbox"/> Other, explain: _____	
<input type="checkbox"/> Special Permit		

(if appropriate, specify type: Modification Renewal other) Expiration Date: _____

Board of Standards and Appeals Yes No

<input type="checkbox"/> Variance (use)	
<input type="checkbox"/> Variance (bulk)	
<input type="checkbox"/> Special Permit	

(if appropriate, specify type: Modification Renewal other) Expiration Date: _____

Other City Approvals

<input type="checkbox"/> Legislation	<input type="checkbox"/> Funding for Construction, specify: _____
<input type="checkbox"/> Rulemaking	<input type="checkbox"/> Policy or Plan, specify: _____
<input type="checkbox"/> Construction of Public Facilities	<input type="checkbox"/> Funding of Program, specify: _____
<input type="checkbox"/> 384 (b) (4) Approval	<input type="checkbox"/> Permits, specify: _____
<input checked="" type="checkbox"/> Other, explain: <u>Consistency Determination, NYC OMB and Comptroller approval for bond financing</u>	

State Actions/Approvals/Funding

<input checked="" type="checkbox"/>	State permit or license, specify Agency: <u>NYSDEC, NYSDOT</u> Permit type and number: <u>See attachment for list of permits.</u>
<input checked="" type="checkbox"/>	Funding for Construction, specify: <u>BPCA bonds</u>
<input type="checkbox"/>	Funding of a Program, specify: _____
<input type="checkbox"/>	Other, explain: _____

Federal Actions/Approvals/Funding

<input checked="" type="checkbox"/>	Federal permit or license, specify Agency: <u>USACE</u> Permit type and number: <u>Section 404/Section 10</u>
<input type="checkbox"/>	Funding for Construction, specify: _____
<input type="checkbox"/>	Funding of a Program, specify: _____
<input type="checkbox"/>	Other, explain: _____

Is this being reviewed in conjunction with a [Joint Application for Permits?](#) Yes No

E. LOCATION QUESTIONS

- 1. Does the project require a waterfront site? Yes No
- 2. Would the action result in a physical alteration to a waterfront site, including land along the shoreline, land under water or coastal waters? Yes No
- 3. Is the project located on publicly owned land or receiving public assistance? Yes No
- 4. Is the project located within a FEMA 1% annual chance floodplain? (6.2) Yes No
- 5. Is the project located within a FEMA 0.2% annual chance floodplain? (6.2) Yes No
- 6. Is the project located adjacent to or within a special area designation? See [Maps – Part III](#) of the NYC WRP. If so, check appropriate boxes below and evaluate policies noted in parentheses as part of WRP Policy Assessment (Section F).
 - Significant Maritime and Industrial Area (SMIA) (2.1)
 - Special Natural Waterfront Area (SNWA) (4.1)
 - Priority Maritime Activity Zone (PMAZ) (3.5)
 - Recognized Ecological Complex (REC) (4.4)
 - West Shore Ecologically Sensitive Maritime and Industrial Area (ESMIA) (2.2, 4.2)

F. WRP POLICY ASSESSMENT

Review the project or action for consistency with the WRP policies. For each policy, check Promote, Hinder or Not Applicable (N/A). For more information about consistency review process and determination, see **Part I** of the [NYC Waterfront Revitalization Program](#). When assessing each policy, review the full policy language, including all sub-policies, contained within **Part II** of the WRP. The relevance of each applicable policy may vary depending upon the project type and where it is located (i.e. if it is located within one of the special area designations).

For those policies checked Promote or Hinder, provide a written statement on a separate page that assesses the effects of the proposed activity on the relevant policies or standards. If the project or action promotes a policy, explain how the action would be consistent with the goals of the policy. If it hinders a policy, consideration should be given toward any practical means of altering or modifying the project to eliminate the hindrance. Policies that would be advanced by the project should be balanced against those that would be hindered by the project. If reasonable modifications to eliminate the hindrance are not possible, consideration should be given as to whether the hindrance is of such a degree as to be substantial, and if so, those adverse effects should be mitigated to the extent practicable.

		Promote	Hinder	N/A
I	Support and facilitate commercial and residential redevelopment in areas well-suited to such development.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I.1	Encourage commercial and residential redevelopment in appropriate Coastal Zone areas.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
I.2	Encourage non-industrial development with uses and design features that enliven the waterfront and attract the public.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
I.3	Encourage redevelopment in the Coastal Zone where public facilities and infrastructure are adequate or will be developed.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
I.4	In areas adjacent to SMIA's, ensure new residential development maximizes compatibility with existing adjacent maritime and industrial uses.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
I.5	Integrate consideration of climate change and sea level rise into the planning and design of waterfront residential and commercial development, pursuant to WRP Policy 6.2.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		Promote	Hinder	N/A
2	Support water-dependent and industrial uses in New York City coastal areas that are well-suited to their continued operation.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.1	Promote water-dependent and industrial uses in Significant Maritime and Industrial Areas.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.2	Encourage a compatible relationship between working waterfront uses, upland development and natural resources within the Ecologically Sensitive Maritime and Industrial Area.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.3	Encourage working waterfront uses at appropriate sites outside the Significant Maritime and Industrial Areas or Ecologically Sensitive Maritime Industrial Area.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.4	Provide infrastructure improvements necessary to support working waterfront uses.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.5	Incorporate consideration of climate change and sea level rise into the planning and design of waterfront industrial development and infrastructure, pursuant to WRP Policy 6.2.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Promote use of New York City's waterways for commercial and recreational boating and water-dependent transportation.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.1.	Support and encourage in-water recreational activities in suitable locations.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.2	Support and encourage recreational, educational and commercial boating in New York City's maritime centers.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.3	Minimize conflicts between recreational boating and commercial ship operations.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.4	Minimize impact of commercial and recreational boating activities on the aquatic environment and surrounding land and water uses.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.5	In Priority Marine Activity Zones, support the ongoing maintenance of maritime infrastructure for water-dependent uses.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Protect and restore the quality and function of ecological systems within the New York City coastal area.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1	Protect and restore the ecological quality and component habitats and resources within the Special Natural Waterfront Areas.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.2	Protect and restore the ecological quality and component habitats and resources within the Ecologically Sensitive Maritime and Industrial Area.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.3	Protect designated Significant Coastal Fish and Wildlife Habitats.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.4	Identify, remediate and restore ecological functions within Recognized Ecological Complexes.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.5	Protect and restore tidal and freshwater wetlands.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.6	In addition to wetlands, seek opportunities to create a mosaic of habitats with high ecological value and function that provide environmental and societal benefits. Restoration should strive to incorporate multiple habitat characteristics to achieve the greatest ecological benefit at a single location.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.7	Protect vulnerable plant, fish and wildlife species, and rare ecological communities. Design and develop land and water uses to maximize their integration or compatibility with the identified ecological community.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.8	Maintain and protect living aquatic resources.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		Promote	Hinder	N/A
5	Protect and improve water quality in the New York City coastal area.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.1	Manage direct or indirect discharges to waterbodies.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.2	Protect the quality of New York City's waters by managing activities that generate nonpoint source pollution.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.3	Protect water quality when excavating or placing fill in navigable waters and in or near marshes, estuaries, tidal marshes, and wetlands.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.4	Protect the quality and quantity of groundwater, streams, and the sources of water for wetlands.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.5	Protect and improve water quality through cost-effective grey-infrastructure and in-water ecological strategies.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Minimize loss of life, structures, infrastructure, and natural resources caused by flooding and erosion, and increase resilience to future conditions created by climate change.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.1	Minimize losses from flooding and erosion by employing non-structural and structural management measures appropriate to the site, the use of the property to be protected, and the surrounding area.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.2	Integrate consideration of the latest New York City projections of climate change and sea level rise (as published in <i>New York City Panel on Climate Change 2015 Report, Chapter 2: Sea Level Rise and Coastal Storms</i>) into the planning and design of projects in the city's Coastal Zone.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.3	Direct public funding for flood prevention or erosion control measures to those locations where the investment will yield significant public benefit.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.4	Protect and preserve non-renewable sources of sand for beach nourishment.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Minimize environmental degradation and negative impacts on public health from solid waste, toxic pollutants, hazardous materials, and industrial materials that may pose risks to the environment and public health and safety.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.1	Manage solid waste material, hazardous wastes, toxic pollutants, substances hazardous to the environment, and the unenclosed storage of industrial materials to protect public health, control pollution and prevent degradation of coastal ecosystems.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.2	Prevent and remediate discharge of petroleum products.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7.3	Transport solid waste and hazardous materials and site solid and hazardous waste facilities in a manner that minimizes potential degradation of coastal resources.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Provide public access to, from, and along New York City's coastal waters.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.1	Preserve, protect, maintain, and enhance physical, visual and recreational access to the waterfront.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.2	Incorporate public access into new public and private development where compatible with proposed land use and coastal location.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.3	Provide visual access to the waterfront where physically practical.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.4	Preserve and develop waterfront open space and recreation on publicly owned land at suitable locations.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		Promote	Hinder	N/A
8.5	Preserve the public interest in and use of lands and waters held in public trust by the State and City.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.6	Design waterfront public spaces to encourage the waterfront's identity and encourage stewardship.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Protect scenic resources that contribute to the visual quality of the New York City coastal area.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.1	Protect and improve visual quality associated with New York City's urban context and the historic and working waterfront.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2	Protect and enhance scenic values associated with natural resources.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Protect, preserve, and enhance resources significant to the historical, archaeological, architectural, and cultural legacy of the New York City coastal area.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.1	Retain and preserve historic resources, and enhance resources significant to the coastal culture of New York City.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.2	Protect and preserve archaeological resources and artifacts.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

G. CERTIFICATION

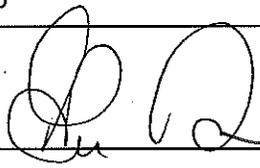
The applicant or agent must certify that the proposed activity is consistent with New York City's approved Local Waterfront Revitalization Program, pursuant to New York State's Coastal Management Program. If this certification cannot be made, the proposed activity shall not be undertaken. If this certification can be made, complete this Section.

"The proposed activity complies with New York State's approved Coastal Management Program as expressed in New York City's approved Local Waterfront Revitalization Program, pursuant to New York State's Coastal Management Program, and will be conducted in a manner consistent with such program."

Applicant/Agent's Name: Battery Park City Authority, Gwen Dawson, Vice President of Real Property

Address: 200 Liberty Street, 24th Floor

Telephone: (212) 417-2000 Email: GwenDawson@bpca.ny.gov

Applicant/Agent's Signature: 

Date: 4/12/22

Submission Requirements

For all actions requiring City Planning Commission approval, materials should be submitted to the Department of City Planning.

For local actions not requiring City Planning Commission review, the applicant or agent shall submit materials to the Lead Agency responsible for environmental review. A copy should also be sent to the Department of City Planning.

For State actions or funding, the Lead Agency responsible for environmental review should transmit its WRP consistency assessment to the Department of City Planning.

For Federal direct actions, funding, or permits applications, including Joint Applicants for Permits, the applicant or agent shall also submit a copy of this completed form along with his/her application to the [NYS Department of State Office of Planning and Development](#) and other relevant state and federal agencies. A copy of the application should be provided to the NYC Department of City Planning.

The Department of City Planning is also available for consultation and advisement regarding WRP consistency procedural matters.

New York City Department of City Planning

Waterfront and Open Space Division
120 Broadway, 31st Floor
New York, New York 10271
212-720-3696
wrp@planning.nyc.gov
www.nyc.gov/wrp

New York State Department of State

Office of Planning and Development
Suite 1010
One Commerce Place, 99 Washington Avenue
Albany, New York 12231-0001
518-474-6000
www.dos.ny.gov/opd/programs/consistency

Applicant Checklist

- Copy of original signed NYC Consistency Assessment Form
- Attachment with consistency assessment statements for all relevant policies
- For Joint Applications for Permits, one (1) copy of the complete application package
- Environmental Review documents
- Drawings (plans, sections, elevations), surveys, photographs, maps, or other information or materials which would support the certification of consistency and are not included in other documents submitted. All drawings should be clearly labeled and at a scale that is legible.
- Policy 6.2 Flood Elevation worksheet, if applicable. For guidance on applicability, refer to the WRP Policy 6.2 Guidance document available at www.nyc.gov/wrp

C.3 New York City Consistency Assessment Addendum



NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM (WRP) CONSISTENCY ASSESSMENT FORM - WRP POLICY QUESTIONS – RESPONSES

The project site is located within New York City's designated coastal zone and as a result the Proposed Action is subject to review for its consistency with the City's Waterfront Revitalization Program.

Consistency of the Proposed Project with the Waterfront Revitalization Program Policies

The City's WRP is comprised of ten principal policies designed to maximize the benefits derived from economic development, environmental preservation, and public use of the waterfront, while minimizing the conflicts among those objectives.

As summarized below, the Proposed Action is consistent with Policy Nos. 1, 4, 5, 6, 7, 8, 9, and 10 while Policy No. 2 and 3 are not applicable.

B1. Brief Description of Activity

During Superstorm Sandy in 2012, coastal surge inundated Lower Manhattan on its western side through low elevation points near Pier A and in or adjacent to other parts of Battery Park City, damaging, destroying and/or negatively impacting significant components of Lower Manhattan's critical and civic infrastructure. In response to the devastating impact of Superstorm Sandy in Lower Manhattan and in anticipation of future severe storm activity related to global climate change, the SBPCR Project has been developed by the BPCA as an integrated coastal flood risk management project in Lower Manhattan. The SBPCR Project represents one of several projects within the overall Lower Manhattan Coastal Resiliency (LMCR) Master Plan

The SBPCR Project Area (Project Area), the area of direct physical disturbance, extends from 1st Place and the Museum of Jewish Heritage, through Robert F. Wagner Park (Wagner Park or the Park), across Pier A Plaza, and then along the north side of the Battery Bikeway in The Battery to higher ground near the intersection of Battery Place and State Street. The SBPCR Study Area (Study Area), which extends beyond the Project Area, varies by resource but is generally defined as the area within 400 feet of the SBPCR Project improvements (see **Exhibit 1**).

The SBPCR Project is being designed to provide flood risk reduction within the Project Area for the current 100-year flood, inclusive of increased intensity and frequency of rainfall, coastal surge, and predicted sea level rise. It is one of three (3) resiliency projects being undertaken by BPCA to address flood risk reduction throughout Battery Park City's ninety-two (92) acres. The other two projects are the Battery Park City Ball Fields and Community Center Resiliency Project, and the North/West BPC Resiliency Project. The SBPCR Project is also being designed with adaptability for the 2050 100-year storm event at such time as the North/West BPC Resiliency Project is completed and a tie-in between the two (2) projects is created

The flood alignment is composed of multiple different integrated features such as flip-up deployable gates (flip-up deployables), glass-topped floodwalls, buried floodwalls underneath terraced slopes, exposed floodwalls, and bermed floodwalls. The term "flood alignment" is used to differentiate the combination



of flood control measures represented by the SBPCR Project from a traditional freestanding flood wall for risk reduction. In addition, interior drainage improvements are proposed for the SBPCR Project, including the isolation of the existing underground sewer manholes and connected chambers (see **Exhibit 2**).

B2. Purpose of Activity

During Superstorm Sandy in 2012, storm and coastal surge inundated portions of Lower Manhattan on its western side through areas in or adjacent to northern Battery Park City and Pier A Plaza south of Wagner Park. Water also found its way onto One World Trade Center and the Hugh L. Carey Tunnel (formerly known as the Brooklyn-Battery Tunnel) and impacted much of Lower Manhattan's critical infrastructure.

The SBPCR Project's primary goal is risk reduction in the southern extremes of Battery Park City. This would be accomplished through implementation of integrated flood risk measures, while meeting the design criteria for a 100-year storm event, inclusive of increased intensity and frequency of rainfall, coastal surge and predicted sea level rise. While the SBPCR Project would provide immediate risk reduction for the 100-year storm, it would also provide ready adaptability to the DFE for the 2050 100-year storm at such time as the North/West BPC Resiliency Project is constructed and a tie-in between the systems is created. The SBPCR Project is expected to be accredited by the Federal Emergency Management Agency (FEMA). Accreditation requires a FEMA review of as-built plans and verification that the flood system meets all pertinent requirements and achieves acceptable risk reduction in practice.

The purpose of the SBPCR Project is to:

- Provide a reliable coastal flood control system to provide risk reduction to property, residents and assets within the vicinity of South Battery Park City in response to the design storm event;
- Protect and preserve to the maximum extent practicable, open space resources and opportunities to view and interact with the Manhattan waterfront, particularly in Wagner Park, Pier A Plaza and The Battery; and,
- Avoid or minimize disruption to existing below and above-ground infrastructure (i.e., water and sewer infrastructure, subways, tunnels, utilities, etc.) from flood events.

Specific objectives of the SBPCR Project are to:

- Provide a reliable coastal flood control system that minimizes risk and the need for operational interventions by relying primarily on passive flood control technology as opposed to mechanical "deployable" flood control technology;
- Construct and operate the project in an environmentally responsible manner;
- Preserve to the greatest extent practicable the character and design aesthetic of the community and its interface with the BPC waterfront and access to coastal viewsheds, particularly views of the harbor and Statue of Liberty; and
- Utilize cost-effective solutions to maximize capital investment over the lifespan of the SBPCR Project.

D. Required Actions or Approvals



Federal

- U.S. Army Corps of Engineers (USACE) – Permits or authorizations for activities in Waters of the United States (Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act).
- U.S. Environmental Protection Agency (USEPA), U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration’s (NOAA) National Marine Fisheries Service (NMFS) – Advisory agencies to the federal permitting process focusing on activities that affect wetlands, water quality, protected plant and wildlife species, and essential fish habitat.
- Federal Emergency Management Agency (FEMA) – Review of flood protection design and potential changes to Flood Insurance Rate Maps (FIRM).

State of New York

- Department of Environmental Conservation (NYSDEC) – Permits related to activities in tidal wetlands or adjacent areas (Article 25) or protection of waters (Article 15), Water Quality Certification (Section 401); permits related to the State Pollutant Discharge Elimination System (SPDES) program; and approvals related to the import of fill material requiring Beneficial Use Determination.
- Department of State (NYSDOS) –Coastal Zone Consistency Determination.
- Office of Parks, Recreation and Historic Preservation (OPRHP) – State Historic Preservation Office (SHPO) leading the federal review process pursuant to Section 106 of the National Historic Preservation Act (NHPA) and Section 14.09 of the New York State Historic Preservation Act with respect to designated and protected properties on the State and National Registers of Historic Places and properties determined eligible for such listing.
- Department of Transportation (NYSDOT) –Design coordination as needed and construction permits for work within the right-of way.
- New York City Transit Authority (NYCTA) – Coordination regarding impacts to bus routes/stops on Battery Place.
- MTA - Triborough Bridge and Tunnel Authority (TBTA) –Approval of alignment crossing over Brooklyn-Battery Tunnel.

City of New York

- Department of Parks & Recreation (NYC Parks) - Forestry Permits for tree removals and restitution and Capital Construction Permit for bikeway/Battery elements. Revocable consent would be required for construction on NYC Parks owned property.
- Department of Environmental Protection (NYCDEP) – Design approval of project elements related to stormwater management, water and sewer infrastructure, coordination with respect to potential hazardous materials and natural resources impacts, as well as air quality and noise/vibration analyses.
- Department of Transportation (NYCDOT) – Design approval of bike lane, lighting, and other work in NYCDOT ROW, as well as coordination/review of transportation analyses. Revocable consent would be required for construction in the ROW.



- Department of City Planning (DCP) – Consistency determination under the Local Waterfront Revitalization Program.
- Small Business Services (NYCSBS) – Coordination and approval for activities on SBS owned property. Revocable consent would be required for construction on SBS owned property.
- Landmarks Preservation Commission (NYCLPC) – Advisory agency for activities on or near sites of historic or archaeological value.
- New York City Police Department (NYPD) – Approval for bollard and security design.
- New York City Fire Department (FDNY) – Coordination of access requirements and impact to FDNY facilities and conduits within the right-of-way.
- Public Design Commission – Design approval for permanent structures, landscape architecture, and art proposed on City-owned property.



WRP Policy 1: Support and facilitate commercial and residential redevelopment in areas well-suited to such development.

Policy 1.5: Integrate consideration of climate change and sea level rise into the planning and design of waterfront residential and commercial development, pursuant to WRP Policy 6.2.

The SBPCR Project seeks to protect the southern extremes of Battery Park City from flood risk and sea level rise through the installation of a flood control system comprised of a combination of flip-up deployables, glass-topped floodwalls, buried floodwalls underneath terraced slopes, exposed floodwalls, and bermed floodwalls. The flood control system would protect this southern portion of Battery Park City from the 100-year storm, it would also provide immediate adaptability to the Design Flood Elevation (DFE) for the 2050 100-year storm once the North/West BPC Resiliency Project is constructed and a tie-in between the systems is accomplished. The SBPCR Project is expected to be accredited by the Federal Emergency Management Agency (FEMA). Accreditation requires a FEMA review of as-built plans and verification that the flood system meets all pertinent requirements and achieves acceptable risk reduction in practice.

The design relies on sea level rise estimates provided in the New York City Panel on Climate Change 2015 Report. See below for an analysis of this project's consistency with WRP Policy 6.2.

WRP Policy 2: Support water-dependent and industrial uses in New York City coastal areas that are well-suited to their continued operation.

Policy 2 is not applicable to the Proposed Action.

WRP Policy 3: Promote use of New York City's waterways for commercial and recreational boating and water-dependent transportation.

Policy 3.5: In Priority Marine Activity Zones, support the ongoing maintenance of maritime infrastructure for water-dependent uses.

While a portion of the Proposed Action is within the Priority Marine Activity Zones along the Battery (see **Exhibit 4**), this project will not affect that area of shoreline or the ongoing maintenance of maritime infrastructure. Therefore, Policy 3 is not applicable to the Proposed Action.

WRP Policy 4: Protect and restore the quality and function of ecological systems within the New York coastal area.

The parallel goals of this policy are to avoid or minimize any adverse primary or secondary impacts to the coastal ecosystem and to restore ecological systems and habitat where practicable. The SBPCR Project would promote the quality and function of ecological system.

Policy 4.3: Protect designated Significant Coastal Fish and Wildlife Habitats



The waters adjacent to the Project Area form the southern endmouth of the Hudson River, River Mile (RM) zero, close to its confluence with the East River and upper New York Bay. New York Bay is a 25-square mile waterbody at the mouth of the Hudson River where it joins the Atlantic Ocean near the Verrazzano-Narrows Bridge. Despite the urban character of New York City, the harbor is home to numerous fish species and habitats.

The waters adjacent to the Project Area are designated as Lower Hudson Reach Significant Coastal Fish and Wildlife Habitat (SCFWH). The Lower Hudson Reach SCFWH is identified as one of only a few large tidal river mouth systems in the northeastern United States, providing a unique range of salinity and other estuarine features. Numerous estuarine and marine species occur regularly in the harbor, along with various anadromous and catadromous fish species.

The SBPCR Project would provide an opportunity for a new waterfront marine habitat educational area along the Pier A inlet. The Pier A inlet design converts a concrete relieving platform and rip-rap edge to a terraced condition that improves habitat opportunities. The construction would include removal of a portion of the relieving platform and replace it with a metal grate platform, which would allow 50 percent of available light to pass through.

The Proposed Action within the Pier A inlet would result in improvements to the aquatic ecosystem. The removal of existing relieving platform would provide opportunities for intertidal and supratidal vegetative plantings, as well as provide sunlight to a currently completely shaded aquatic environment. Therefore the Proposed Action would be consistent with this policy.

Policy 4.5: Protect and restore tidal and freshwater wetlands

Review of the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) and New York State freshwater and tidal wetland maps indicated that no mapped vegetated wetlands are located within the Project Area above the high tide line. The NWI mapper indicates that the Hudson River Estuary adjacent to the Project Area is classified as an estuarine and marine deepwater environment (E1UBL: Estuarine, Subtidal Unconsolidated). The New York State Tidal Wetland Maps indicate the Pier A inlet is mapped as Littoral Zone (LZ). The LZ tidal wetland category includes all tidal waters that are not included in any other category that are less than six feet deep at mean low water (MLW) (see **Exhibit 5**).

Observations on site confirmed that there are no vegetated wetlands within and/or immediately adjacent to the Pier A Inlet, nor are there any Submerged Aquatic Vegetation (SAV) beds present within the Pier A inlet. Despite the lack of vegetation, disturbances within the Pier A inlet and immediate adjacent areas would trigger federal and state permitting.

The SBPCR Project would provide an opportunity for a new waterfront marine habitat educational area along the Pier A Inlet. The Pier A Inlet design converts a concrete relieving platform and rip-rap edge to a terraced condition that improves habitat opportunities.



Potential indirect impacts to tidal wetlands would be minimized per Policies 5 as described below. Therefore, the Proposed Action would not affect State or federally-regulated tidal wetlands and would be consistent with this policy.

Policy 4.6: In addition to wetlands, seek opportunities to create a mosaic of habitats with high ecological value and function that provide environmental and societal benefits. Restoration should strive to incorporate multiple habitat characteristics to achieve the greatest ecological benefit at a single location.

The SBPCR Project would enhance Wagner Park's programmatic diversity and provide an opportunity for a new waterfront marine habitat educational area along the Pier A inlet. As described in Policy 4.3, the Pier A inlet design converts a concrete relieving platform and rip-rap edge to a terraced condition that improves habitat opportunities. The construction would include removal of a portion of the relieving platform and replace it with a metal grate platform, which would allow 50 percent of available light to pass through.

The Proposed Action within the Pier A inlet would result in improvements to the aquatic ecosystem. The removal of existing relieving platform would provide opportunities for intertidal and supratidal vegetative plantings, as well as provide sunlight to a currently completely shaded aquatic environment.

The existing piles supporting the decking would be left in place and coated with EConcrete as well as other subtidal surfaces to further encourage colonization of aquatic organisms. Moreover, as part of the planned restoration, intertidal and supratidal vegetative plantings would be placed in the area of existing rip rap and tide pools would be constructed, further enhancing the habitat quality of the area. The vegetative plantings would consist of salt marsh grasses in the intertidal zone and salt tolerant vegetation above the high tide line to simulate shoreline habitats. Any temporary habitat disturbances and minor losses of benthic habitat would be offset by the positive long-term habitat improvements in the Project Area. The Proposed Action would increase the value of the habitat through increased sunlight, as well as the placement of intertidal and supratidal plantings to a habitat currently devoid of plants. Therefore, the Proposed Action would be consistent with this policy.

Policy 4.7: Protect vulnerable plant, fish and wildlife species, and rare ecological communities. Design and develop land and water uses to maximize their integration or compatibility with the identified ecological community.

Please see responses to Policy 4.3 and 4.6.

Policy 4.8: Maintain and protect living aquatic resources.

Please see responses to Policy 4.3 and 4.6.



WRP Policy 5: Protect and improve water quality in the New York City coastal area.***Policy 5.1: Manage direct or indirect discharges to waterbodies.***

The SBPCR Project is generally located along the southern end of Battery Park City and Battery Place between Pier A Plaza and State Street in Lower Manhattan. It is situated within low-lying coastal areas along the Hudson River and New York Harbor. This Study Area is served by public potable water transmission, distribution mains and public sewers that mainly consist of combined sewers, regulators, interceptors and combined sewer overflows (CSO). These components are part of the combined sewer system (CSS) that serves the portion of the Study Area outside BPCA jurisdiction. The CSS conveys only sanitary sewer flow during dry weather, but during wet weather, carries both stormwater and sewer flows to a wastewater treatment plant (WWTP). In the Study Area, during and directly following large wet weather events, stormwater flows at the maximum capacity of the system with excess combined sewage overflowing into the Hudson River. NYCDEP estimates and reports annual volumes of CSO under federal, state and local regulatory requirements and CSO abatement programs. The flows conveyed by the CSS up to its capacity, ultimately discharge to the East River and Newtown Creek, after they are pumped via the Manhattan Pumping Station (MPS) and treated at NYCDEP's Newtown Creek WWTP in Brooklyn. The WWTP has an existing SPDES permit that regulates the volumes and content of treated discharge and sets monitoring and treatment requirements for the discharge to Newtown Creek and the East River.

The Study Area within BPCA jurisdiction is served by a separated sewer system, with sanitary flows conveyed to the south interceptor connected to the MPS. Stormwater runoff discharges to the Hudson River through MS4 outfalls, other stormwater separated outfalls as well as some direct drainage along the areas closer to the shoreline.

The construction of the proposed flood control system would require modifications to the existing CSS and MS4 system in order to: 1) ensure that the existing infrastructure does not allow storm surge to migrate to the protected (dry-side) of the alignment; and 2) manage any water that enters the proposed flip-up deployable sections either from runoff or regular maintenance. As such, the following discussion is broken down to define proposed changes to water, sewer, and stormwater infrastructure as well as to discuss the findings of the modelling and analyses used to evaluate the SBPCR Project.

Stormwater infrastructure running beneath the coastal barrier alignment from the "wet-side" of the alignment to the "dry-side" during a storm surge would create a failure condition by conveying stormwater to the dry-side of the alignment. In order to avoid such conditions during storm surge, tidegates would be installed at two existing separate MS4 outfalls – one at 1st Place and the second at Rector Place. A third tidegate would be installed on the combined sewer overflow outfall at Pier A Plaza southeast of Pier A.



These modifications would not impact the stormwater drainage systems' capacity under coastal and non-coastal surge conditions. Tidegates open whenever there is a positive head differential between the water level in the outfalls upstream of the tidegates and the Hudson River. The proposed tidegates would not introduce flow area restrictions and therefore would not impact the MS4 system's discharge capacity under either scenario.

Two isolation valves would be installed in The Battery. One valve would be installed at the 12-inch diameter storm drain that collects runoff from The Battery, approximately 50-feet east of the Battery Park Underpass alignment. A sanitary sewer isolation valve would be installed just north of The Battery comfort station. The valves would remain in the open position during non-coastal storm events. In advance of a major coastal storm event, the valves would be closed to prevent coastal waters from surging through the storm water drain and the sanitary lines connected to the comfort station.

The sewer interceptor line branches would be isolated with a NSI system. The NSI system would consist of the installation of a gate within the existing regulator structures, M9, M8, and M7. During coastal surge events, these three regulator structures would be closed to prevent the storm surge rising through the interceptor line from reaching the street level. The regulator chambers' access points at street level would be retrofitted with pressure tight covers. A sanitary overflow chamber on West Thames Street would be subject to the pressure-proofing improvements. Additionally, four interceptor manholes along West Street between Battery Place and Albany Street would be pressure-proofed and retrofitted with a cover that can be sealed shut and locked during a flood event. In coordination with NYCDEP, model evaluations were conducted to confirm that there would be no significant adverse flooding impacts to adjacent unprotected areas served by the interceptor sewer as a result of the implementation of the NSI system within the Study Area.

The Proposed Action is located in an area entirely connected to sewer and water infrastructure and would not create any type of new development that would be associated with additional permanent water or sanitary sewer demands beyond those expected from the reconstruction of the Wagner Park pavilion, which, because it would only be slightly larger, would be negligible.

The Proposed Action would not create new outfalls nor result in increased impervious surfaces that would increase stormwater runoff.

Furthermore, the design of Wagner Park has been developed to comply with the Waterfront Edge Design Guidelines (WEDG) through innovative and integrated landscape, architectural, and engineering site planning. WEDG is a rating system and set of guidelines to create resilient, ecological, and accessible waterfronts. The plantings on the water side of the Wagner Park flood alignment would tolerate salt spray and temporary inundation, reduce maintenance costs and provide ecological benefits. Planting designs in some of the terraced planters that transition down to the esplanade would serve as rain gardens for capturing and filtering precipitation. Stormwater



from planters and hardscape would be routed to an infiltration gallery located underneath the Esplanade, to reduce the point source discharge of stormwater to the Hudson River. The layout reduces risk of coastal flood hazards while enhancing waterfront access and providing a newly continuous waterfront walkway experience that improves Battery Park City's connection to the Pier A Plaza and The Battery. On the "dry" side of the flood alignment, a reuse cistern would capture stormwater generated during rain events. Reuse measures include site washdown, drip irrigation, and pavilion flush fixtures. Water captured by the cistern would be treated via a proprietary treatment system and distributed throughout the park.

Wagner Park's carefully designed planting plan is organized around four regional plant communities including tidal estuary, maritime meadow, maritime forest, and upland woodland. The landscape's design use of native plants reduces water consumption and reduces maintenance labor while significantly boosting local biodiversity and habitat support. The SBPCR Project's turfgrass areas make use of subsurface irrigation to reduce water consumption by more than 30 percent.

In consideration of the results of the planning and coordination with agencies, significant adverse impacts to sewer and water infrastructure or the treatment and demand for these resources would not be expected as a result of the SBPCR Project. Therefore, the Proposed Action would be consistent with these policies.

Policy 5.2: Protect the quality of New York City's waters by managing activities that generate nonpoint source pollution.

Please see response to Policy 5.1 above.

Policy 5.3: Protect water quality when excavating or placing fill in navigable waters and in or near marshes, estuaries, tidal marshes, and wetlands.

Please see response to Policy 5.1 above.

Policy 5.4: Protect the quality and quantity of groundwater, streams, and the sources of water for wetlands

Please see response to Policy 5.1 above.

Policy 5.5: Protect and improve water quality through cost-effective grey-infrastructure and in-water ecological strategies.

Please see response to Policy 5.1 above.

WRP Policy 6: Minimize loss of life, structures, infrastructure, and natural resources caused by flooding and erosion, and increase resilience to future conditions created by climate change.



Policy 6.1: Minimize losses from flooding and erosion by employing non-structural and structural management measures appropriate to the site, the use of the property to be protected, and the surrounding area.

The SBPCR Project proposes structural flood protection measures that include a combination of flip-up deployables, glass-topped floodwalls, buried floodwalls underneath terraced slopes, exposed floodwalls, and bermed floodwalls to protect the surrounding Battery Park City neighborhood from the 100-year storm. The shoreline within the project area is a hardened shoreline consisting of bulkheads and a relieving platform under Wagner Park. As result, the Proposed Action is consistent with this policy.

Policy 6.2: Integrate consideration of the latest New York City projections of climate change and sea level rise (as published in New York City Panel on Climate Change 2015 Report, Chapter 2: Sea Level Rise and Coastal Storms) into the planning and design of projects in the city's Coastal Zone.

In order to determine the Proposed Action's consistency with WRP Policy 6.2, the General Assessment Methodology was utilized. Please see the attached Policy 6.2 Supplemental Information.

Policy 6.3: Direct public funding for flood prevention or erosion control measures to those locations where the investment will yield significant public benefit

The Proposed Action will direct public funding for a critical flood protection project. The investment in this flood protection project will yield a significant public benefit by protecting the southern portion of Battery Park City and surrounding areas from the 100-year storm, it would also provide immediate adaptability to the Design Flood Elevation (DFE) for the 2050 100-year storm once the North/West BPC Resiliency Project is constructed and a tie-in between the systems is accomplished. Therefore, the Proposed Action would be consistent with this policy.

WRP Policy 7: Minimize environmental degradation and negative impacts on public health from solid waste, toxic pollutants, hazardous materials, and industrial materials that may pose risks to environment and public health and safety.

7.1 Manage solid waste material, hazardous wastes, toxic pollutants, substances hazardous to the environment, and the enclosed storage of industrial materials to protect public health, control pollution and prevent degradation of coastal ecosystems.

Any demolition or soil disturbance that is required for the Proposed Action would be undertaken in accordance with a Remedial Action Plan and Construction Health and Safety Plan, and in compliance with applicable local and state regulations pertaining to handling solid waste, hazardous wastes, toxic pollutants or other substances hazardous to the environment. Therefore, the Proposed Action would promote these policies.



7.2 Prevent and remediate discharge of petroleum products.

Policy 7.2 is not applicable to the Proposed Action.

7.3 Transport solid waste and hazardous materials and site solid and hazardous waste facilities in a manner that minimizes potential degradation of coastal resources.

Please see response to Policy 7.1.

WRP Policy 8: Provide public access to, from, and along New York City's coastal waters.

Policy 8.1: Preserve, protect, maintain, and enhance physical, visual and recreational access to the waterfront.

The purpose of the SBPCR Project is to:

- Provide a reliable coastal flood control system to provide risk reduction to property, residents and assets within the vicinity of South Battery Park City in response to the design storm event;
- Protect and preserve to the maximum extent practicable, open space resources and opportunities to view and interact with the Manhattan waterfront, particularly in Wagner Park, Pier A Plaza and The Battery; and,
- Avoid or minimize disruption to existing below and above-ground infrastructure (i.e., water and sewer infrastructure, subways, tunnels, utilities, etc.) from flood events.

Wagner Park would be elevated 10 to 12 feet from its existing grade for the construction of a buried floodwall crossing Wagner Park from the Museum of Jewish Heritage and Pier A Plaza. The Proposed Action was determined as the only reasonable alternative to fulfill the SBPCR Project purpose and need and maintain existing park programming and use in Wagner Park. The Proposed Action would reconstruct a new pavilion at the plateau of Wagner Park slightly east of the location of the existing pavilion, improving the entrances into Wagner Park by reconstructing the north and south allées, adding wayfinding within Wagner Park, and enhancing the walkway along Battery Place. Between Battery Place and the Battery Park City Esplanade along the Hudson River Waterfront, the Proposed Action would construct new open lawns connected by pedestrian walkways with tiered seating areas and sloped walkways descending from the proposed pavilion to the Esplanade.

Although the Proposed Action would have a significant adverse impact on views of the Hudson River Waterfront and the Statue of Liberty from Battery Place (in only two locations) due to the elevation of Wagner Park and the removal of the existing pavilion, the new Pavilion has been designed to maintain that view within the new elevated Wagner Park.

The views of the Hudson River Waterfront, Statue of Liberty, and New York Harbor from the elevated Wagner Park would be improved due to the ability to see further from an unobstructed



and higher elevation. In addition, views of surrounding aesthetic and visual resources, primarily the Museum of Jewish Heritage and the Pier A would improve because of the higher viewpoints.

Because the Proposed Action would elevate Wagner Park, access from the Battery Place walkway to Wagner Park would be limited to the entrances to the north and south allées. To improve the pedestrian experience along the Battery Place walkway, the proposed allées would be designed for universal access with widened 40-foot walkways, trees lining both sides, and a gentle eight percent slope to the Wagner Park pavilion. Along each allée, there would be new seating and plateaus along the walkway providing pedestrians opportunities to stop and rest. In addition, the existing rectangular cobblestone walkway would be removed, and the entire sidewalk would be paved with hexagonal asphalt pavers. The Proposed Action would add landscaping, including a variety of perennials for every season of the year, along the bermed wall on the western side of the Battery Place sidewalk to enhance the visual experience of pedestrians.

Therefore, the proposed would promote these policies.

Policy 8.3: Provide visual access to the waterfront where physically practical.

Please see response to Policy 8.1 above.

Policy 8.4: Preserve and develop waterfront open space and recreation on publicly owned land at suitable locations.

Please see response to Policy 8.1 above.

Policy 8.5: Preserve the public interest in and use of lands and waters held in public trust by the State and City

Please see response to Policy 8.1 above.

Policy 8.6: Design waterfront public spaces to encourage the waterfront's identity and encourage stewardship.

Please see response to Policy 8.1 above.

WRP Policy 9: Protect scenic resources that contribute to the visual quality of the New York City coastal area.

Policy 9.1: Protect and improve visual quality associated with New York City's urban context and the historic and working waterfront.

The SBPCR Project maintains the visual quality of the New York Coastal area, by maintaining views to the waterfront and improving access to the open space and the waterfront. This is accomplished through a variety of context-sensitive design measures throughout the project design, including minimizing fixed walls, providing universal access, maintaining views of New



York Harbor and the Statue of Liberty from the new Pavilion. These design elements have been coordinated with the New York City Public Design Commission. Therefore, the Proposed Action would be consistent with this policy.

Policy 9.2: Preserve, protect, maintain, and enhance physical, visual and recreational access to the waterfront.

Please see response to Policy 9.1.

WRP Policy 10: Protect, preserve, and enhance resources significant to the historical, archaeological, architectural, and cultural legacy of the New York City coastal area.

Policy 10.1: Retain and preserve historic resources, and enhance resources significant to the coastal culture of New York City.

As part of the review for the Environmental Impact Statement, the impacts of the Proposed Action were analyzed in accordance with Section 14.09 on the 28 historic architectural resources in the Historic Architectural Area of Potential Effect (APE).

The Proposed Action would have an Adverse Impact on one resource: Wagner Park. With respect to the remaining 27 resources, the project would result in No Adverse Impact on nine resources, and No Impact on 18 resources. Avoidance, mitigation, and minimization measures are described below.

The Proposed Action would result in No Adverse Impact on two of the nine resources for which avoidance measures are recommended – Pier A and Castle Clinton. With respect to Pier A, it is located less than 90 feet from the Proposed Action, and as a result, it is recommended that a Construction Protection Plan (CPP) be prepared in accordance with Department of Buildings (DOB) and Landmarks Preservation Commission (LPC) guidelines. Regarding Castle Clinton, it is situated within The Battery adjacent to, and approximately 200 feet southeast of the Proposed Action in Pier A Plaza. The CPP recommended for Castle Clinton would ensure that all measures are being undertaken to protect this National Monument from construction that would occur on an adjacent lot.

In addition, the Proposed Action would result in an Adverse Impact on Wagner Park. Section 14.09 requires that adverse impacts to National Register-listed and/or eligible resources caused by implementation of the undertaking be resolved through mitigation. Therefore, it is anticipated that a Letter of Resolution (LOR) would be drafted and executed between BPCA, SHPO, and other consulting parties to mitigate the Adverse Effect. Potential mitigation could possibly include, but not be limited to:

- Historic American Landscape Survey (HALS) Documentation of Wagner Park prior to construction. Documentation would include a physical description, historic overview,



statement of significance, project information, high-quality digital or large-format photographs, and reproduction of select original plans and historic photographs.

- Interpretive panels installed at the new Wagner Park; panels could describe the original park, and the reasons why it was deemed an exceptionally significant National Register-eligible resource.
- Website publicized on-site or QR codes that could be activated on-site, and direct user to a history of Wagner Park, and the reasons why it was deemed an exceptionally significant National Register-eligible resource; the content could be similar to the panels.

Additionally in Pier A Plaza, the location of the historic waters' edge will be indicated by medallion insets that replace the existing linear stone bands that trace the location of the old waters' edge, thereby maintaining this educational feature.

Ultimately, mitigation recommendations that are agreeable to all parties would be incorporated into the LOR as stipulations. With this mitigation, the Proposed Action would be consistent with this policy.

Policy 10.2: Protect and preserve archaeological resources and artifacts.

A Phase IA Archaeological Documentary Study is currently being prepared in compliance with SEQR and CEQR guidelines, pursuant to requests for such a survey by SHPO and LPC. The Phase IA documentary study has concluded that there are two discrete areas of low to moderate and moderate potential archaeological sensitivity across portions of the APE that may be impacted by the completion of the SBPCR Project. As the SBPCR Project lies within highly utilized public spaces, in order to minimize traffic disruptions and closures of public space, preparation of a Phase IB Archaeological Monitoring Plan (Plan) in consultation with BPCA, SHPO and LPC, is recommended. With the implementation of this Plan, the Proposed Action would be consistent with this policy.



Policy 6.2 Supplemental Information

The New York City (NYC) Department of City Planning (DCP) Climate Change Adaption Guidance (NYC DCP, November 2018) outlines a detailed methodology for site-specific actions to determine a project's consistency with Policy 6.2. There are three basic steps to assessing an action's consistency with Policy 6.2 of the WRP.

1 Identify Vulnerabilities and Consequences

Assess the project's vulnerabilities to future coastal hazards and what the potential consequences may be.

(a) Assess the project area's exposure to current and future flood risk.

The Flood Evaluation Worksheet is included in the Attachments. The information in the following subsections is based on the results of the completed worksheet.

(b) Identify if the project or action would facilitate the development of any vulnerable, critical, or potentially hazardous features within areas exposed to flooding from Mean Higher High Water or 1% Annual Chance Flood by the 2050s under the 90th percentile of sea level rise projections.

The Proposed Action would not lead to any vulnerable, critical, or potentially hazardous feature within areas exposed to flooding. To the contrary, the Proposed Action is a flood protection project, designed to provide flood risk reduction within the Project Area for the current 100-year flood, inclusive of increased intensity and frequency of rainfall, coastal surge, and predicted sea level rise. It is one of three (3) resiliency projects being undertaken by BPCA to address flood risk reduction throughout Battery Park City's ninety-two (92) acres. The other two projects are the Battery Park City Ball Fields and Community Center Resiliency Project, and the North/West BPC Resiliency Project. The SBPCR Project is also being designed with adaptability for the 2050 100-year storm event when the North/West BPC Resiliency Project is completed, and the SBPCR Project ties into it.

Based on the range of sea level rise predictions described above, MHHW at the National Oceanic and Atmospheric Administration (NOAA) Station nearest to the Study Area (currently 2.28 feet NAVD88 at The Battery #8518750) could reach up to 7.11 feet NAVD88 by the 2080s and up to 8.53 feet NAVD88 by 2100 (high projection). Given these projections, some of the flood alignment features would be below MHHW under the scenario projections. However, the Proposed Action is designed to address both storm surge from major storm events and flooding due to sea level rise.

Under FEMA's current Flood Hazard Layer and the 2015 Preliminary FIRM, most of the project area is within Zone AE (see **Exhibits 6 and 7**). The SBPCR Project is designed to withstand storm



impacts due to waves, high winds and debris. The future predicted floodplain in the Year 2050 is illustrated in **Exhibit 8**.

2 Identify Adaptive Strategies

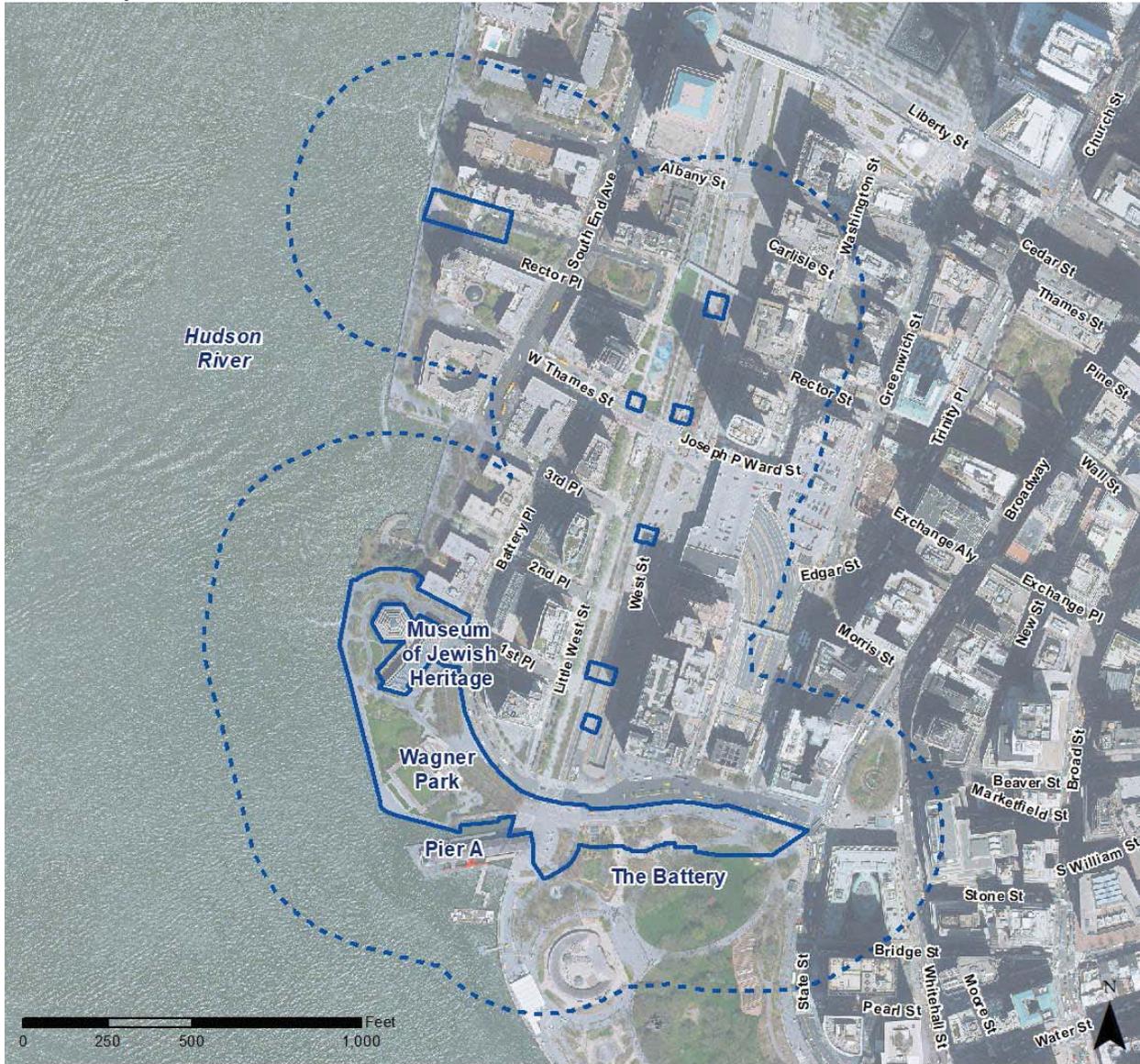
Assess how the vulnerabilities and consequences identified in Step 1 are addressed through the project's design and planning.

Based on Step 1, no vulnerabilities or consequences are identified. The Proposed Action would advance Policy 6.2.

3 Assess Policy Consistency

Based on Step 1 and Step 2, no vulnerabilities or consequences are identified. The Proposed Action would advance Policy 6.2.

Exhibit 1: Project Area



Legend

- Project Area Sites
- Study Area

Project Area
South Battery Park City Resiliency Project

Exhibit 2: Proposed Action



Legend

- | | | |
|--------------------|-------------------------|-----------------|
| Project Area Sites | Flood Alignment | NSI Elements |
| | Exposed Floodwall | Tidegate |
| | Buried Floodwall | Isolation Valve |
| | Glass Topped Floodwall | |
| | Flip-Up Deployable Gate | |
| | Fixed Column | |

**Proposed Action
 South Battery Park City Resiliency Project**



Exhibit 3: Coastal Zone Boundary



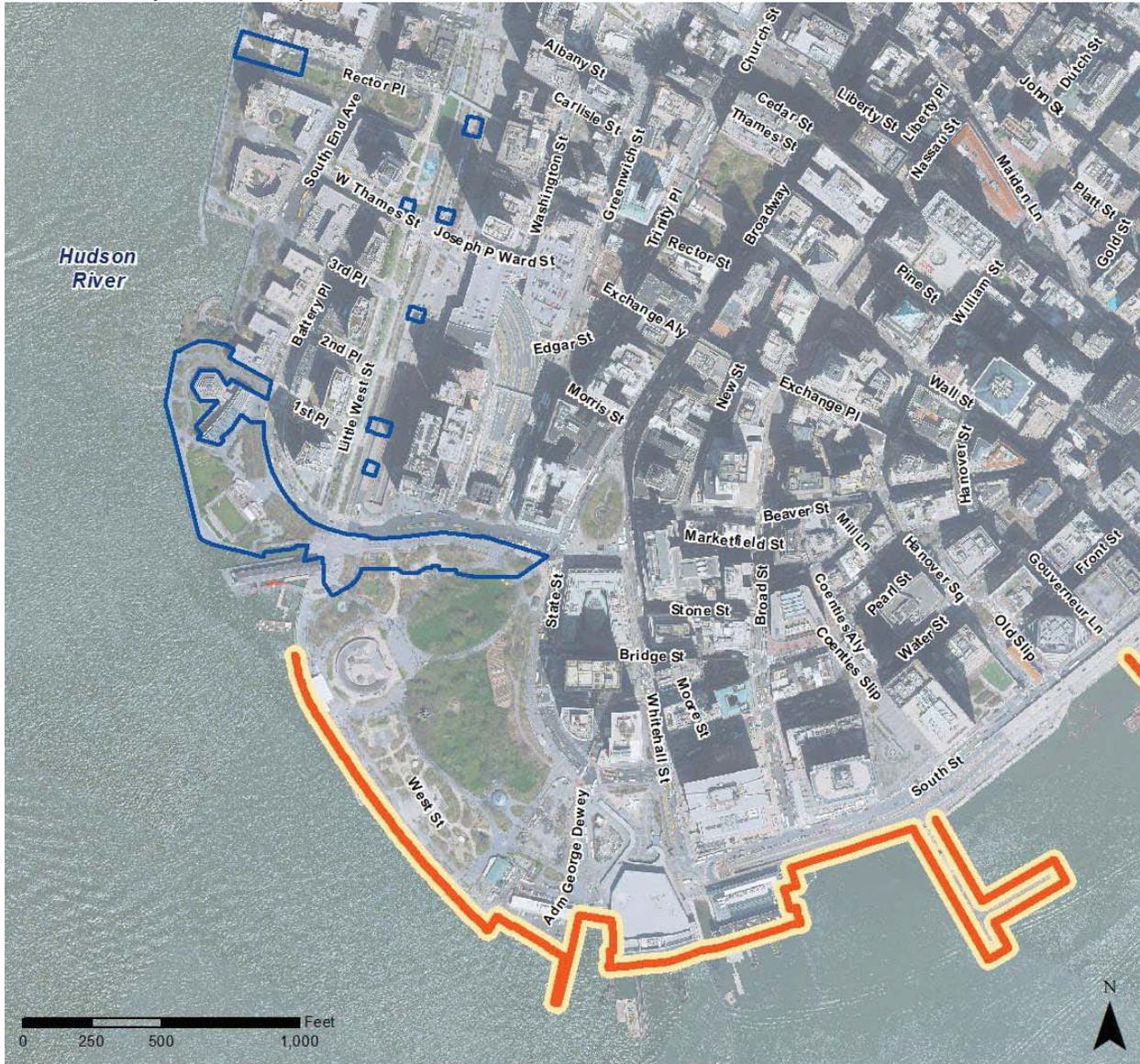
Legend

-  Project Area Sites
-  Coastal Zone Boundary

**Coastal Zone Boundary
South Battery Park City Resiliency Project**



Exhibit 4: Priority Marine Activity Zone



Legend

- Project Area Sites
- Priority Marine Activity Zone

**FEMA National Flood Hazard Layer (NFHL)
South Battery Park City Resiliency Project**



Exhibit 5: NYSDEC Tidal and NWI Wetlands



Legend

-  Project Area Sites
- NYSDEC Tidal Wetlands**
-  Littoral Zone
- NWI Wetlands**
-  E1UBL - Estuarine and Marine Deepwater

**NYSDEC Tidal and NWI Wetlands
South Battery Park City Resiliency Project**

Exhibit 6: FEMA National Flood Hazard Layer

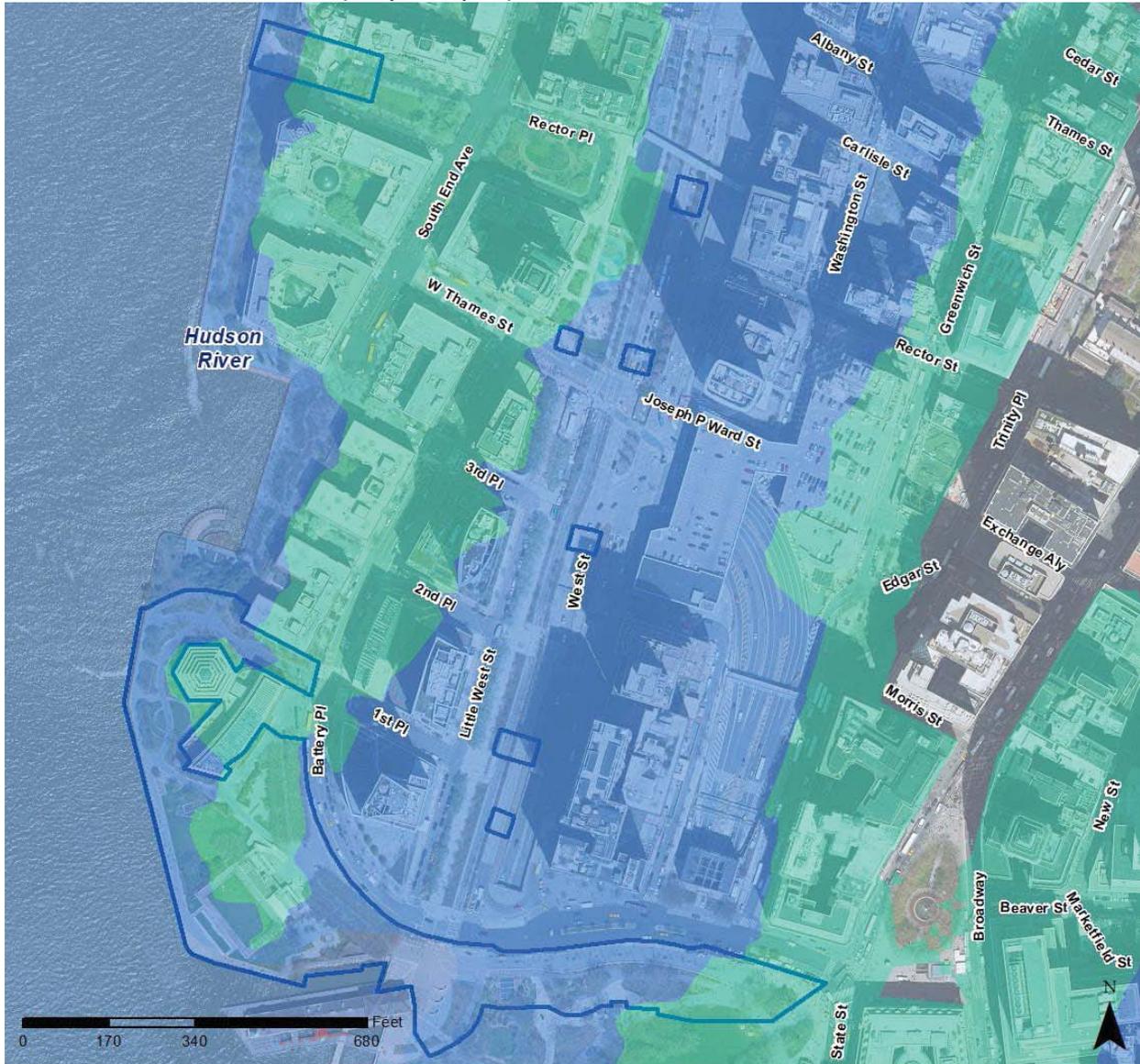


Legend

- Project Area Sites
- Zone VE - An area inundated by 1% annual chance flooding with velocity hazard
- Zone AE - An area inundated by 1% annual chance flooding, for which BFEs have been determined
- 500 Year Flood Zone - An area inundated by 0.2% annual chance flooding

**FEMA National Flood Hazard Layer (NFHL)
South Battery Park City Resiliency Project**

Exhibit 8: Sea Level Rise in the 2050s (100-yr Floodplain)



Legend

-  Project Area Sites
-  1% Annual Chance Floodplain in the 2050s
-  0.2% Annual Chance Floodplain in the 2050s

Sea Level Rise in the 2050s (100-yr floodplain)
South Battery Park City Resiliency Project



- Legend**
- Study Area
 - Project Area Sites
 - Parcel

Source: NYC MapPLUTO Release 21v4

**Tax Lot Map
(Owner, Block, and Lot)
South Battery Park City Resiliency Project**

NYC Waterfront Revitalization Program - Policy 6.2 Flood Elevation Worksheet

COMPLETE INSTRUCTIONS ON HOW TO USE THIS WORKSHEET ARE PROVIDED IN THE "CLIMATE CHANGE ADAPTATION GUIDANCE" DOCUMENT AVAILABLE AT www.nyc.gov/wrp

Enter information about the project and site in highlighted cells in Tabs 1-3. Tab 4, "Summary Charts" contains primary results. Tab 5, "0.2%+SLR" produces charts to be used for critical infrastructure or facilities. Tab 6, "Calculations" contains background computations. Appendix A contains tide elevations for station across the city to be used for the elevation of MHHW if a site survey is not available. Non-highlighted cells have been locked.

Background Information	
Project Name	South Battery Park City Resiliency Project
Location	South Battery Park City
Type(s)	<input type="checkbox"/> Residential, Commercial, Community Facility <input type="checkbox"/> Parkland, Open Space, and Natural Areas <input type="checkbox"/> Tidal Wetland Restoration <input type="checkbox"/> Critical Infrastructure or Facility <input type="checkbox"/> Industrial Uses <input type="checkbox"/> Over-water Structures <input type="checkbox"/> Shoreline Structures <input type="checkbox"/> Transportation <input type="checkbox"/> Wastewater Treatment/Drainage <input checked="" type="checkbox"/> Coastal Protection
Description	During Superstorm Sandy in 2012, coastal surge inundated Lower Manhattan on its western side through low elevation points near Pier A and in or adjacent to other parts of Battery Park City, damaging, destroying and/or negatively impacting significant components of Lower Manhattan's critical and civic infrastructure. In response to the devastating impact of Superstorm Sandy in Lower Manhattan and in anticipation of future severe storm activity related to global climate change, the SBPCR Project has been developed by the BPCA as an integrated coastal flood risk management project in Lower Manhattan. The SBPCR Project represents one of several projects within the overall Lower Manhattan Coastal Resiliency (LMCR) Master Plan
Planned Completion Date	2024
Expected Project Lifespan	

The New York City Waterfront Revitalization Program Climate Change Adaptation Guidance document was developed by the NYC Department of City Planning. It is a guidance document only and is not intended to serve as a substitute for actual regulations. The City disclaims any liability for errors that may be contained herein and shall not be responsible for any damages, consequential or actual, arising out of or in connection with the use of this information. The City reserves the right to update or correct information in this guidance document at any time and without notice.

For technical assistance on using this worksheet, email wrp@planning.nyc.gov, using the message subject "Policy 6.2 Worksheet."

Last update: Sept. 7, 2018

Establish current tidal and flood heights.

	FT (NAVD88)	Feet	Datum	Source
MHHW	2.28	2.28	NAVD88	<i>Datum for The Battery NOAA Station 8518750</i>
1% flood height	12.00	12.00	NAVD88	<i>Approximate, based on closest 1% annual flood height to site</i>
Design flood elevation	-->			
<i>As relevant:</i>				
0.2% flood height	-->			

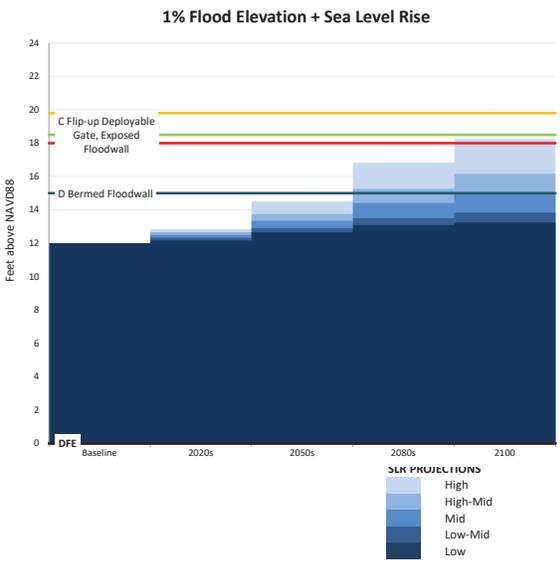
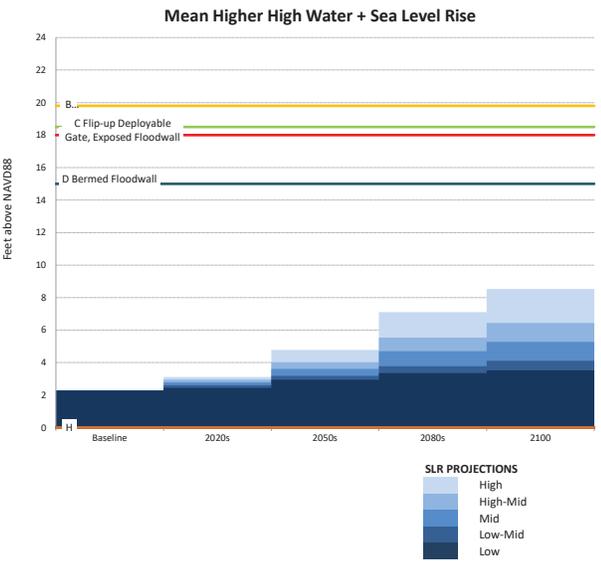
Data will be converted based on the following datums:

Datum	FT (NAVD88)
NAVD88	0.00
NGVD29	-1.10
Manhattan Datum	1.65
Bronx Datum	1.51
Brooklyn Datum (Sewer)	0.61
Brooklyn Datum (Highway)	1.45
Queens Datum	1.63
Richmond Datum	2.09

Describe key physical features of the project.

Feature (enter name)	Feature Category	Lifespan	Elevation	Units	Datum	Ft	Ft Above NAVD88	Ft Above MHRW	Ft Above 0.2% flood height
A Flip-up Deployable Gate	<input type="checkbox"/> Vulnerable <input type="checkbox"/> Critical <input type="checkbox"/> Potentially Hazardous <input checked="" type="checkbox"/> Other	2073	18.0	Feet	NAVD88	18.0	18.0	15.7	#VALUE!
<i>The flood alignment begins on the north side of 1st Place, where it ties into an existing, natural 11-foot flood contour. It then extends south across 1st Place as a flip-up deployable, which would seal against permanent columns when deployed. A glass-topped flood wall would also be constructed in this area.</i>									
B Buried Floodwall	<input type="checkbox"/> Vulnerable <input type="checkbox"/> Critical <input type="checkbox"/> Potentially Hazardous <input checked="" type="checkbox"/> Other	2073	19.8	Feet	NAVD88	19.8	19.8	17.5	#VALUE!
<i>The flood alignment through Wagner Park would be constructed as a buried floodwall connecting to the glass-topped floodwall at the Museum of Jewish Heritage. Wagner Park would be elevated 10 to 12 feet, and the buried floodwall would be constructed beneath the raised park. At the connection between Wagner Park and Pier A Plaza, the flood alignment would be resurfaced and exposed as a short segment of exposed floodwall.</i>									
C Flip-up Deployable Gate, Exposed	<input type="checkbox"/> Vulnerable <input type="checkbox"/> Critical <input type="checkbox"/> Potentially Hazardous <input checked="" type="checkbox"/> Other	2073	18.5	Feet	NAVD88	18.5	18.5	16.2	#VALUE!
<i>The flood alignment would consist of a newly raised segment of Pier A Plaza in conjunction with flip-up deployables and a short section of exposed floodwall, across the Brooklyn Battery Underpass.</i>									
D Bermed Floodwall	<input type="checkbox"/> Vulnerable <input type="checkbox"/> Critical <input type="checkbox"/> Potentially Hazardous <input checked="" type="checkbox"/> Other	2073	15.0	Feet	NAVD88	15.0	15.0	12.7	#VALUE!
<i>The flood alignment is a floodwall beneath a landscaped berm.</i>									
E	<input checked="" type="checkbox"/> Vulnerable <input checked="" type="checkbox"/> Critical <input type="checkbox"/> Potentially Hazardous <input type="checkbox"/> Other			Feet	NAVD88				
<i>Description of Planned Uses and Materials</i>									
F	<input type="checkbox"/> Vulnerable <input type="checkbox"/> Critical <input type="checkbox"/> Potentially Hazardous <input type="checkbox"/> Other			Feet	NAVD88				
<i>Description of Planned Uses and Materials</i>									
G	<input type="checkbox"/> Vulnerable <input type="checkbox"/> Critical <input type="checkbox"/> Potentially Hazardous <input type="checkbox"/> Other			Feet	NAVD88				
<i>Description of Planned Uses and Materials</i>									
H	<input type="checkbox"/> Vulnerable <input type="checkbox"/> Critical <input checked="" type="checkbox"/> Potentially Hazardous <input type="checkbox"/> Other			Feet	NAVD88				
<i>Description of Planned Uses and Materials</i>									

Assess project vulnerability over a range of sea level rise projections.



0.2% Flood Elevation + Sea Level Rise



	SLR (ft)					
	Low	Low-Mid	Mid	High-Mid	High	
Baseline	0.00	0.00	0.00	0.00	0.00	2014
2020s	0.17	0.33	0.50	0.67	0.83	2020s
2050s	0.67	0.92	1.33	1.75	2.50	2050s
2080s	1.08	1.50	2.42	3.25	4.83	2080s
2100	1.25	1.83	3.00	4.17	6.25	2100

MHHW+SLR (ft above NAVD88)

	Low	Low-Mid	Mid	High-Mid	High
Baseline	2.28	2.28	2.28	2.28	2.28
2020s	2.45	2.61	2.78	2.95	3.11
2050s	2.95	3.20	3.61	4.03	4.78
2080s	3.36	3.78	4.70	5.53	7.11
2100	3.53	4.11	5.28	6.45	8.53

1%+SLR (ft above NAVD88)

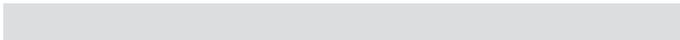
	Low	Low-Mid	Mid	High-Mid	High
Baseline	12.00	12.00	12.00	12.00	12.00
2020s	12.17	12.33	12.50	12.67	12.83
2050s	12.67	12.92	13.33	13.75	14.50
2080s	13.08	13.50	14.42	15.25	16.83
2100	13.25	13.83	15.00	16.17	18.25

0.2%+SLR (ft above NAVD88)

	Low	Low-Mid	Mid	High-Mid	High
Baseline	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2020s	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2050s	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2080s	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2100	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

	0	1
A Flip-up Deployable Gate	18	18
B Buried Floodwall	20	19.8
C Flip-up Deployable Gate, Exl	18.5	18.5
D Bermed Floodwall	15	15
E	0	0
F	0	0
G	0	0
H	0	0
DFE	0.00	0.00

SLR (in)					
Low	Low-Mid	Mid	High-Mid	High	
	0	0	0	0	0
	2	4	6	8	10
	8	11	16	21	30
	13	18	29	39	58
	15	22	36	50	75



NOAA Tide Station Data*(to be used only when a site survey is unavailable)*

Station ID	Station Name	Source MHHW (Feet, NAVD88)*	Adjusted MHHW (Feet, NAVD88)*
8518687	Queensboro Bridge	2.27	2.60
8530095	Alpine	2.11	2.44
8516614	Glen Cove	3.72	4.05
8516990	Willetts Point	3.72	4.05
8518639	Port Morris	3.33	3.66
8518699	Williamsburg Bridge	2.14	2.47
8518750	The Battery	2.28	2.61
8531680	Sandy Hook	2.41	2.74
8518490	New Rochelle	3.71	4.04
8531545	Keyport	2.66	2.99
8516891	Norton Point	2.08	2.41
8517201	North Channel	2.72	3.05
8517137	Beach Channel	2.10	2.43
8517756	Kingsborough	2.13	2.46
8519436	Great Kills	2.22	2.55
8531142	Port Reading	2.82	3.15
8519483	Bergen Point	2.56	2.89
8519050	USCG	2.28	2.61
8518902	Dyckman St	2.01	2.34
8517251	Worlds Fair Marina	3.59	3.92
8518668	Horns Hook	2.54	2.87
8518643	Randalls Island	2.60	2.93
8518526	Throggs Neck	3.68	4.01

* MHHW values include an addition 0.33 feet to account for changes in sea level since the 1983-20

Source
NOAA Tides and Currents
NOAA VDATUM
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NOAA VDATUM
NOAA VDATUM
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01 tidal epoch.



